

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the Virginia Pollutant Discharge Elimination System (VPDES) permit listed below. This permit is being processed as a Minor, Industrial Permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9 VAC 25-260 et seq. The discharge results from the operation of the Seawater Research Laboratory (SRL) at the Virginia Institute of Marine Science (VIMS). This permit action consists of updating permit special conditions and re-evaluating effluent limitations. In addition, the effluent limitations and monitoring requirements associated with Outfall 003 have been removed from the permit since Byrd Hall has been demolished and the outfall eliminated.

1. Facility Name: Virginia Institute of Marine Science
 Facility Address: 1443 Greate Road
 Gloucester Point, Virginia 23062
 Mailing Address: 1208 Greate Road
 Gloucester Point, Virginia 23062
 SIC Code: 0273 (Animal Aquaculture)
 0921 (Fish Hatchery)
 8221 (Colleges, Universities, and Professional Schools)
 8733 (Noncommercial Research Organizations)

2. Permit No. VA0071528 Existing Permit Expiration Date: 11/5/2011

3. Owner: The College of William and Mary
 Owner Contact: Dr. John Wells
 Title: Dean and Director
 Telephone No.: (804) 684-7000

4. Application Complete Date: 08/05/2011
 DEQ Regional Office: Piedmont Regional Office
 Permit Drafted By: Andrew Hammond Date: 08/05/11, 09/12/11, 10/31/11
 Reviewed By: Tamira Cohen Date: 09/09/11
 Curt Linderman Date: 10/25/11, 11/01/11

5. Receiving Stream Name: York River
 River Mile: 8-YRK005.45
 Basin: York River
 Subbasin: N/A
 Section: 1
 Class: II
 Special Standards: a

7-Day, 10-Year Low Flow (7Q10):	N/A	1-Day, 10-Year Low Flow (1Q10):	N/A
7-Day, 10-Year High Flow:	N/A	1-Day, 10-Year High Flow:	N/A
30-Day, 5-Year Low Flow (30Q5):	N/A	Harmonic Mean Flow (HM):	N/A
30-Day, 10-Year Low Flow (30Q10):	N/A		

 Tidal? Yes On 303(d) list? Yes

 See **Attachment A** for flow frequency analysis memo.

6. Operator License Requirements: None required.

7. Reliability Class: Not applicable.

8. Permit Characterization:

- () Private () Federal (X) State () POTW
 () Possible Interstate Effect () Interim Limits in Other Document

9. See **Attachment B** for facility flow diagram.

Table 1. Discharge Description

Outfall Number	Discharge Source	Treatment	Maximum 30-Day Average Flow
004	Flow-through York River seawater (circulated through Seawater Research Laboratory)	Influent: Microscreen Drum Filtration Conical Settling Foam Fractionation	1.008 MGD (does not include storm water)
		Effluent: Multi-Media Filtration Carbon Adsorption Filtration Bag Filtration Microscreen Drum Filtration Ozonation Ozone Destruction	

This facility discharges to the York River via a submerged diffuser. Diffuser information (as obtained from the Seawater Research Laboratory construction drawings) is as follows:

- Diameter of diffuser: 18 inches
 Length of diffuser: 200 feet (approximate, ductile iron pipe)
 Depth of diffuser: 3 feet (below mean low water)
 Number of ports: 1 (with Red Valve Tideflex TF-1 check valve)
 Diameter of port: 18 inches

Due to various constraints, site-specific modeling of the mixing zone has not been performed for Outfall 004. Therefore, agency default tidal dilution ratios (2:1 for acute toxicity and 50:1 chronic toxicity) have been used to evaluate the effluent's potential impact on the receiving water body. This procedure was also utilized for the 2008 permit modification.

This facility also has a number of additional flow-through wastewater discharges associated with aquaculture projects. See Table 2 below. These additional discharges and/or outfalls are operated independently of the SRL (Outfall 004).

Table 2. Additional Flow-through Wastewater Discharges

Discharge Source	Annual Production (lb/yr)
Aquaria Displays (Waterman's Hall)	200
GEM Lab / Saltwater Grass Tank Farm	7,860
Aquaculture Department's Oyster Hatchery (located at VIMS Boat Basin)	132
Aquaculture Department's Seagrass Facility (located at VIMS Boat Basin)	1,000
Aquaculture Department's Cobia Facility (located at VIMS Boat Basin)	1,000

Discharge Source	Annual Production (lb/yr)
Aquaculture Department's Ray Facility (located at VIMS Boat Basin)	480

10. Sewage Sludge Use or Disposal: Not applicable as this facility does not generate sewage sludge.

11. Discharge Location Description: This facility discharges to the York River.
 Topographic Map Name: Poquoson (West), Virginia
 Topographic Map Number: 065B

See **Attachment C** for topographic map.

12. Material Storage:
 Chemicals utilized in laboratory water sampling and cleaning/disinfection are stored indoors in appropriate, approved storage containers. The facility also has the capability of storing hazardous wastes utilized in laboratory experiments (if the need should ever arise). The hazardous waste storage system consists of two (2) double walled, ultraviolet light stabilized, polyethylene hazardous waste storage tanks. The storage tanks are located outside of the SRL in a limited access area enclosed with security fencing.

13. Ambient Water Quality Information:
 Water Quality data from monitoring station 8-YRK001.64 were used in this permit reissuance for toxic pollutant limitation evaluations. Monitoring station 8-YRK001.64 is located mid-channel on the York River between buoy 24 and the Amoco refinery and is approximately 3.8 miles downstream of the discharge point.

See **Attachment A** for monitoring station 8-YRK001.64 stream data.

14. Antidegradation Review & Comments:

Tier: 1 X 2 3

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The York River is determined to be a Tier 1 water body. This determination is based upon an impaired benthic community in the York River polyhaline estuary (YRKPH), which has been identified in the 2010 305(b)/303(d) Water Quality Assessment.

15. Site Inspection: Performed by: Andrew Hammond & Jeremy Kazio
 Date: June 14, 2011

See **Attachment D** for site inspection memorandum.

16. Effluent Screening & Limitation Development:

See **Attachment E** for influent and effluent data submitted on the monthly Discharge Monitoring Reports (DMRs).

See **Attachment F** for a summary of the water quality criteria monitoring data submitted with the permit reissuance application.

If it is determined that a specific pollutant cited in the Virginia Water Quality Standards (9 VAC 25-260 et seq.) exists in a facility's effluent, a reasonable potential analysis is required in order to determine if the facility may violate Water Quality Standards (WQS). This evaluation begins by determining the maximum allowable pollutant concentrations that can be discharged by a specific facility which will maintain the acute and chronic criteria contained in the WQS within the receiving stream (called "wasteload allocations" or WLA's). The WLA's are calculated using a DEQ-created Excel spreadsheet called MSTRANTI, which requires inputs representing critical data for effluent and stream flows and quality. The STATS computer application is then utilized to determine if the identified pollutant has the potential to exceed either the acute or chronic WLA's on a long term basis by calculating the expected long-term effluent distribution of the facility, then comparing the 97th percentile of that distribution to the pollutant's lowest calculated wasteload allocation. If a limitation is needed, STATS will also calculate that limitation based on EPA guidelines for the control of toxic pollutants. Lastly, the expected value of the pollutant is also compared to applicable human health water quality criteria.

See **Attachment G** for the evaluations of the pollutants of concern. Included in Attachment G are the MSTRANTI printout and STATS analyses.

Table 3. Basis of Effluent Limitations

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
001 – Flow	NA	NL	NA	NA	NL
002 – pH	1	NA	NA	6.0 s.u.	9.0 s.u.
004 – Total Suspended Solids (TSS)	2	NL	NA	NA	NL
007 – Dissolved Oxygen (DO)	2	NA	NA	4.3 mg/L	NA
012 – Total Phosphorus (TP)	2	NL	NA	NA	NA
013 – Total Nitrogen (TN)	2	NL	NA	NA	NA
059 – Total Organic Carbon (TOC)	2	NL	NA	NA	NL
068 – Total Kjeldahl Nitrogen (TKN)	2	NL	NA	NA	NA
164 – Influent Flow	NA	NL	NA	NA	NL
227 – Total Phosphorus, Intake (TP-I)	2	NL	NA	NA	NA
389 – Nitrate / Nitrite	2	NL	NA	NA	NA
622 – Total Nitrogen, Intake (TN-I)	2	NL	NA	NA	NA
840 – Total Nitrogen (TN-ML) Monthly Net Load	3	NA	NA	NA	NL
841 – Total Nitrogen (TN-YTD) Year-to-Date Net Load	3	NA	NA	NA	NL
842 – Total Nitrogen (TN-AL) Calendar Year Net Load	3	NA	NA	NA	NL
843 – Total Phosphorus (TP-ML) Monthly Net Load	3	NA	NA	NA	NL
844 – Total Phosphorus (TP-YTD) Year-to-Date Net Load	3	NA	NA	NA	NL
845 – Total Phosphorus (TP-AL)	3	NA	NA	NA	NL

EFFLUENT CHARACTERISTICS	BASIS FOR LIMITS	DISCHARGE LIMITATIONS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
Calendar Year Net Load					
856 – Total Kjeldahl Nitrogen, Intake (TKN-I)	2	NL	NA	NA	NA
857 – Nitrate / Nitrite, Intake	2	NL	NA	NA	NA
865 – Dissolved Oxygen (DO)	2	5.0 mg/L (minimum)	NA	NA	NA

1. Water Quality Standards (9 VAC 25-260 et seq.)
2. Best Engineering Judgment (BEJ)
3. General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820-70)

pH (002): A pH limitation of 6.0 to 9.0 standard units is assigned to all discharges into Class II Estuarine Waters in accordance with the Water Quality Standards (WQS), 9 VAC 25-260-50.

Guidance Memorandum (GM) 10-2003, January 2010 VPDES Permit Manual, states that pH reduced monitoring should not be allowed where minimum or maximum pH values fall within 0.5 standard units (s.u.) of the permit limits. A review of the DMR data included in Attachment E indicates 1 instance in which the reported maximum pH was greater than or equal to 8.5 s.u. (within 0.5 s.u. of the maximum permit limitation of 9.0 s.u.). Consequently, this parameter is not eligible for reduced monitoring and reporting.

TSS (004): No limitation is established; however, monitoring and reporting are required based upon best engineering judgment. Backwash wastewaters from the influent microscreen drum filtration and conical settling processes are discharged directly to Outfall 004 without treatment. This facility was also included in the annual aggregate total suspended solids wasteload allocation for the York River polyhaline (YRKPH) segment in the EPA approved Chesapeake Bay TMDL. Therefore, permit staff recommends continued monthly monitoring and reporting to aid in future effluent water quality evaluations.

DO (007), DO (865): These effluent limitations have been carried forward from the 2008 permit modification to avoid backsliding. A BEJ minimum monthly average DO limitation of 5.0 mg/L and a BEJ minimum instantaneous DO limitation of 4.3 mg/L are expected to maintain all applicable DO water quality standards prior to discharge.

GM 10-2003 states that dissolved oxygen reduced monitoring should not be allowed when minimum or average dissolved oxygen concentrations fall within 0.5 mg/L or 1.0 mg/L, respectively, of the permit limit. A review of the DMR data included in Attachment E indicates 4 instances in which the reported minimum dissolved oxygen concentration was less than or equal to 4.9 mg/L or within 0.5 mg/L of the permit limitation of 4.3 mg/L. The data also indicates 5 instances in which the reported monthly average dissolved oxygen concentration was less than or equal to 6.0 mg/L or within 1.0 mg/L of the permit limitation of 5.0 mg/L. Consequently, that this parameter is not eligible for reduced monitoring and reporting.

TP (012), TP-I (227), TP-ML (843), TP-YTD (844), TP-AL (845): No limitations are established; however, monitoring and reporting are required based upon best engineering judgment. In 2007, the permittee submitted projected total and NET (effluent loading minus influent loading) total phosphorus yearly loadings. See **Attachment H**. After reviewing the data, the DEQ Office of Water Permits & Compliance Assistance (OWP&CA) concluded that the expanded facility would fall below the required registration and offset threshold value of 300 lb/yr TP for new and expanding facilities contained in 9VAC25-820-10 et seq., General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in The Chesapeake Bay Watershed in Virginia. In order to confirm this conclusion, the permittee was required to perform twice per month influent and effluent monitoring and reporting for TP and Orthophosphate. The

permittee was also required to calculate and report NET TP monthly loadings, TP calendar year-to-date loadings, and TP calendar year annual loadings (Outfall 999). The aforementioned nutrient monitoring and reporting for Outfalls 004 and 999 was authorized with the 4/3/2008 permit modification and commenced on 5/1/2008. Nutrient data for Outfalls 004 and 999 were first reported to DEQ on 6/11/2008.

DMR data from May 2008 to April 2011 (see Attachment E) indicates that the NET total phosphorus yearly loadings have not exceeded the required registration and offset threshold value of 300 lb/yr TP. However, permit staff recommends continued twice per month influent and effluent monitoring and reporting for TP to further confirm the OWP&CA conclusion. Continued nutrient monitoring and reporting is also warranted due to potential varying effluent characteristics with each new experiment undertaken in the laboratory and projected future gross nutrient discharges (see Attachment H) that may exceed the Watershed General Permit threshold. The permittee will also be required to calculate and report NET TP monthly loadings, TP calendar year-to-date loadings, and TP calendar year annual loadings in accordance with 9 VAC 25-820-70, Part I.B.4 (Watershed General Permit).

Monitoring and reporting for influent and effluent orthophosphate have been removed from the permit since the proposed amendments to 9VAC25-820-10 et seq. will eliminate the required monitoring and reporting for this parameter. Removal of this influent and effluent parameter has been discussed with Alan Brockenbrough (OWP&CA) and his concurrence has been obtained.

TN (013), TKN (068), Nitrate/Nitrite (389), TN-I (622), TN-ML (840), TN-YTD (841), TN-AL (842), TKN-I (856), Nitrate/Nitrite, Intake (857): No limitations are established; however, monitoring and reporting are required based upon best engineering judgment. In 2007, the permittee submitted projected total and NET (effluent loading minus influent loading) total nitrogen yearly loadings. See **Attachment H**. After reviewing the data, the DEQ Office of Water Permits & Compliance Assistance (OWP&CA) concluded that the expanded facility would fall below the required registration and offset threshold value of 2,300 lb/yr TN for new and expanding facilities contained in 9VAC25-820-10 et seq., General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in The Chesapeake Bay Watershed in Virginia. In order to confirm this conclusion, the permittee was required to perform twice per month influent and effluent monitoring and reporting for TN, TKN, and Nitrate/Nitrite. The permittee was also required to calculate and report NET TN monthly loadings, TN calendar year-to-date loadings, and TN calendar year annual loadings (Outfall 999). The aforementioned nutrient monitoring and reporting for Outfalls 004 and 999 was authorized with the 4/3/2008 permit modification and commenced on 5/1/2011. Nutrient data for Outfalls 004 and 999 were first reported to DEQ on 6/11/2008.

DMR data from May 2008 to April 2011 (see Attachment E) indicates that the NET total nitrogen yearly loadings have not exceeded the required registration and offset threshold value of 2,300 lb/yr TN. However, permit staff recommends continued twice per month influent and effluent monitoring and reporting for TN, TKN, and Nitrate/Nitrite to further confirm the OWP&CA conclusion. As previously noted, continued nutrient monitoring and reporting is also warranted due to potential varying effluent characteristics with each new experiment undertaken in the laboratory and projected future gross nutrient discharges (see Attachment H) that may exceed the Watershed General Permit threshold. The permittee will also be required to calculate and report NET TN monthly loadings, TN calendar year-to-date loadings, and TN calendar year annual loadings in accordance with 9 VAC 25-820-70, Part I.B.4 (Watershed General Permit).

TOC (059): No limitation is established; however, monitoring and reporting are required based upon best engineering judgment. TOC is a non-specific indicator of water quality and does not have an established water quality standard. Monitoring and reporting for TOC was included in VIMS' VPDES permit prior to the 2000 reissuance. Due to agency file retention policies, the original rationale for its inclusion (along with a 50 mg/L concentration that may trigger more frequent monitoring) cannot be located. However, the permittee reported a maximum 30-day value of 21.8 mg/L on EPA Form 2C. Permit staff recommends continued monthly monitoring and reporting to aid in future effluent water quality evaluations.

Other Parameters: The permittee reported a detectable concentration (21 µg/L) for dissolved zinc; see Attachment F. A reasonable potential analysis was performed and permit limitations are not needed; see

Attachment G. Zinc was compared to the human health – all other surface waters WLA from MSTRANTI and further evaluation was not necessary. See Table 4 below.

The permittee reported detectable concentrations (229 pCi/L and 239 pCi/L) for Beta Particle & Photo activity; see Attachment F. The Beta Particle & Photon Activity data reported is expressed in units of concentration (pCi/L) whereas the human health – public water supply criterion (4 mrem/yr) is expressed in units of exposure. Virginia’s Waterworks Regulations, 12VAC5-590-10 et seq., establish a primary maximum contaminant level (PCML) of 4 mrem/yr for Beta Particle & Photon Activity. The Waterworks Regulations also state, “When the detected level of beta/photon emitters has been reported in units of pCi/L and does not exceed 50 pCi/L, the [consumer confidence] report may list the PMCL as 50 pCi/L. EPA considers 50 pCi/L to be the level of concern for beta particles.” Consequently, Beta Particle & Photon Activity is believed present for this evaluation. However, the testing laboratory, Eberline Analytical, indicated on 8/3/2011 that the reported concentrations may have been adversely impacted (i.e. inflated) due to TSS interference, total dissolved solids (TDS) interference, or a small aliquot sample used for analysis. The human health – public water supply criterion is not applicable to the facility’s receiving stream. Detectable data were compared against the criterion to illustrate the effluent’s potential impact on human health.

The permittee reported a detectable concentration (1 colony forming unit per 100 milliliters or 1 CFU/100 mL) for *Enterococci* bacteria; see Attachment F. The WQS (9VAC25-260-170) state that *Enterococci* bacteria shall not exceed a monthly geometric mean of 35 CFU/100 mL in saltwater in order to protect primary contact recreational uses. Since the reported *Enterococci* bacteria concentration is less than the required monthly geometric mean, it is anticipated that the discharge will not violate the WQS. Consequently, a permit limitation for *Enterococci* bacteria has not been included in the 2012 permit.

The permittee reported a detectable concentration (1,310,000 µg/L) for sulfate; see Attachment F. For illustrative purposes, sulfate was compared with the human health – public water supply criterion (an all other surface waters criterion does not exist for this parameter) from the WQS. See Table 4 below. Additional permit limitations are not needed for this parameter; the sulfate human health – public water supply criterion is not applicable to the facility’s receiving stream.

The permittee reported a detectable concentration (500 µg/L) for total recoverable iron on EPA Form 2C. For illustrative purposes, iron was compared with the human health – public water supply criterion (an all other surface waters criterion does not exist for this parameter) from the WQS. See Table 4 below. Additional permit limitations are not needed for this parameter; the iron human health – public water supply criterion is not applicable to the facility’s receiving stream.

Table 4. Human Health Evaluation

PARAMETER	MAX. REPORTED CONCENTRATION	HUMAN HEALTH CRITERION	FURTHER EVALUATION REQUIRED?
Dissolved Zinc	21 µg/L	1,300,000 µg/L	NO
Sulfate	1,310,000 µg/L	250,000 µg/L ⁽²⁾	-----
Total Recoverable Iron ⁽¹⁾	500 µg/L	300 µg/L ⁽²⁾	-----

(1) The human health criterion for this parameter is in the dissolved form. Utilizing detectable total recoverable metals data allows for conservative comparisons with the dissolved metals human health criteria.

(2) Human health – public water supply criterion which is not applicable to the facility’s receiving stream. Comparison between the maximum reported detectable concentration and the human health criterion performed for illustrative purposes only.

All other parameters were reported below DEQ required quantification levels (QLs) and therefore, considered absent for the purposes of this evaluation.

Whole Effluent Toxicity (WET): The 2008 permit modification required the permittee to perform quarterly acute WET testing for Outfall 004 using *Americanmysis bahia* and *Cyprinodon variegates*. Since all acute WET testing results met the special condition endpoint of NOAEC equal to 100%, DEQ staff recommends discontinuing the required acute WET testing with the 2012 permit reissuance. The 2008 permit modification also required the permittee to perform quarterly chronic WET testing for Outfall 004 using *Americanmysis bahia* and *Cyprinodon variegates*. Since all chronic WET testing results met the special condition endpoint of NOEC equal to 17%, DEQ staff recommends a reduced chronic WET testing frequency (semi-annually) with the 2012 permit reissuance. Semi-annual chronic WET testing using *Americanmysis bahia* and *Cyprinodon variegates* will allow DEQ staff to further evaluate the effluent's potential toxic effect on aquatic life. See **Attachment I** for the Whole Effluent Toxicity (WET) memorandum and DEQ Central Office concurrence.

17. Antibacksliding Statement:
All limitations in the proposed permit are the same or more stringent than the limitations in the 2008 permit modification.
18. Compliance Schedules: Not applicable.
19. Special Conditions:
 - a. Part I.B.1 – Notification Levels
Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural discharges.
 - b. Part I.B.2 – Seawater Research Laboratory Pollutant Reporting
Rationale: Code of Virginia § 62.1-44.21 of the State Water Control Law authorizes the Board to request information needed to determine the discharge's impact on State waters. Notifying DEQ of the SRL experiments discharging pollutants not identified in the VPDES application or at increased concentrations and of subsequent wastewater treatment required to remove any pollutants from the discharge will assist DEQ in ensuring that discharges from this facility will be in compliance with 9VAC25-31-10 et seq.
 - c. Part I.B.3 – O & M Manual Requirement
Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O & M manual ensures this.
 - d. Part I.B.4 – Materials Handling/Storage
Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and § 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.
 - e. Part I.B.5 – Closure Plan
Rationale: Code of Virginia § 62.1-44.16 of the State Water Control Law. This condition establishes the requirement to submit a closure plan for the wastewater treatment facility if the treatment facility is being replaced or is expected to close.
 - f. Part I.B.6 – Compliance Reporting
Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J.4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

- g. Part I.B.7 – Water Quality Criteria Reopener
Rationale: VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.
- h. Part I.B.8 – Nutrient Reopener
Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion, or upgrade. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- i. Part I.B.9 – Additional Flow-through Wastewater Discharges
Rationale: VPDES Permit Regulation, 9 VAC 25-31-10 et seq. requires any person who discharges or proposes to discharge any pollutant into surface waters of the Commonwealth from a point source (including storm water discharges from certain industrial facilities) to apply for a VPDES permit.

Discharges to the York River from VIMS' aquaculture facilities are point source discharges. The total annual production of aquatic animals (warm water species) from the aquaculture facilities is less than 100,000 lb/yr. Therefore, in accordance with GM 98-2004, effluent limitations, monitoring, and reporting are not required for these discharges.
- j. Part I.B.10 – Nutrient Reporting Calculations
Rationale: § 62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. This special condition is intended to further confirm that VIMS is not a significant discharger to the Chesapeake Bay watershed and to aid in future water quality evaluations.
- k. Part I.B.11 – Concept Engineering Report
Rationale: § 62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.
- l. Part I.C – Whole Effluent Toxicity (WET) Testing
Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.
- m. Part II – Conditions Applicable to All VPDES Permits
Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. NPDES Permit Rating Work Sheet: Total Score 74 (See **Attachment J**)

21. Changes to the Permit:

Permit Cover Page Changes:					
Item		Rationale			
Initial paragraph		Updated language to reflect GM 10-2003 (January 2010 VPDES Permit Manual).			
Facility location		Updated to reflect permit reissuance application, EPA Form 1.			
Part I.A. Changes – Outfall 003:					
I.A.1	Removed	Byrd Hall has been demolished and Outfall 003 has been eliminated.			
Part I.A. Changes – Outfall 004:					
Parameter Changed	Discharge Limitations Changed		Monitoring Requirements Changed		Rationale
	From	To	From	To	
Influent Flow	No Change		2/Month	1/Month	Relocated from Part I.B.13 to Part I.A.1 for clarity purposes. Updated monitoring frequency to match that of effluent flow. Sample frequency updated to “Estimate.”
Total Phosphorus, Intake	No Change		No Change		Relocated from Part I.B.13 to Part I.A.1 for clarity purposes.
Total Nitrogen as N, Intake	No Change		No Change		Relocated from Part I.B.13 to Part I.A.1 for clarity purposes.
Total Kjeldahl Nitrogen as N, Intake	No Change		No Change		Relocated from Part I.B.13 to Part I.A.1 for clarity purposes.
Nitrate/Nitrite as N, Intake	No Change		No Change		Relocated from Part I.B.13 to Part I.A.1 for clarity purposes.
Orthophosphate	NL mg/L	Removed	2/Month	Removed	Monitoring and reporting removed for this parameter due to proposed changes in 9VAC25-820-10 et seq. (Watershed General Permit).
	NL lb/d				
From	To		Rationale		
I.A.2	I.A.1		Renumbered, updated language to reflect GM 10-2003.		
I.A.2 – “NL” Footnote	I.A.1 – “NL” Footnote		Updated definitional footnote for “NL” (no limitation) for additional clarity.		
I.A.2.b	I.A.1(a)		Renumbered, no change.		
I.A.2.d	I.A.1(b)		Renumbered, no change.		
I.A.2.f	I.A.1(c)		Renumbered, revised language for additional clarity.		
I.A.2.g	I.A.1(d)		Renumbered, revised language for additional clarity.		
I.A.2.h	I.A.1(e)		Renumbered, updated special condition reference.		
I.A.2.c	I.A.2		Renumbered, no change.		
I.A.2.e	I.A.3		Renumbered, revised language for additional clarity.		
I.A.2.a	Removed		Unnecessary.		
Part I.A. Changes – Outfall 999:					
I.A.3	I.A.4		Renumbered, updated language to reflect GM 10-2003.		
I.A.3 – “NL” Footnote	I.A.4 – “NL” Footnote		Updated definitional footnote for “NL” (no limitation) for additional clarity.		
I.A.3.a	I.A.4(a)		Renumbered, updated special condition reference.		
-----	I.A.4(b)		New, added special condition reference for clarity purposes.		

-----	I.A.4(c)	New, added language to provide additional clarity for Total Nitrogen monitoring and reporting.
Special Condition Changes:		
From	To	Rationale
I.B.1	I.B.1	Revised language to include reference to DEQ Piedmont Regional Office.
I.B.2	I.B.2	No change.
I.B.3	I.B.3	Updated language to reflect GM 10-2003.
I.B.4	I.B.4	Updated language to reflect GM 10-2003.
I.B.5	I.B.5	Updated language to reflect GM 10-2003. Language further revised according to regional procedure.
I.B.6	I.B.6	Updated language to reflect GM 10-2003. Language further revised according to regional procedure. Removed all QLs for parameters not limited in the permit. Monthly average and daily maximum language further revised to reflect removal of all QLs.
I.B.7	I.B.7	No change.
I.B.8	I.B.8.a	Special condition language has been incorporated into a new permit special condition (Part I.B.8).
-----	I.B.8.b	New, added special condition language in accordance with GM 07-2008, Amendment No. 2.
I.B.9	I.B.8.c	Special condition language has been incorporated into a new permit special condition (Part I.B.8). Updated language to reflect GM 07-2008, Amendment No. 2.
I.B.11	I.B.9	Updated language to reflect the demolition of the Marine Culture Lab (formerly Outfall 002). Language further revised for clarity purposes.
I.B.14	I.B.10	Updated special condition language to reflect Watershed General Permit (9 VAC 25-820-70, Part I.E.4). Language further revised to reflect the calculation of NET nutrient loadings.
-----	I.B.11	New, added according to regional staff decision – 6/29/2010.
I.B.10	Removed	Permittee fulfilled this special condition during the existing permit cycle.
I.B.12	Removed	Permittee fulfilled this special condition during the existing permit cycle.
I.B.13	I.A.1	Seawater Research Laboratory influent monitoring and reporting requirements relocated to Part I.A.1 for clarity purposes. References to Byrd Hall (Outfall 003) have been removed due to its elimination.
I.C.3 – 4	I.C.1 – 5	Updated language to reflect Whole Effluent Toxicity Memo. See Attachment I for additional discussion. Language further revised according to regional procedure.
I.C.1 – 2	Removed	Deleted language to reflect the closure of Byrd Hall and the elimination of Outfall 003.

22. Variances/Alternate Limits or Conditions: None.

23. Public Notice Information required by 9 VAC 25-31-280 B:

Comment Period: State Date: 12/08/11
 End Date: 01/09/12
 Published Dates: 12/08/11, 12/15/11
 Publishing Newspaper: *Gloucester-Mathews Gazette-Journal*

All pertinent information is on file and may be inspected or copied by contacting Andrew Hammond at:

Virginia Department of Environmental Quality (DEQ)
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060

Phone: 804-527-5048
Fax: 804-527-5106
Email: Andrew.Hammond@deq.virginia.gov

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment or may request copies of the documents from the contact person listed above.

Public Notice Comments: No comments were received during the public comment period.

24. 303(d) Listed Segments (TMDL):

This facility discharges to the tidal York River. The stream segment receiving the effluent is listed as impaired for not supporting the Fish Consumption Use on the 2010 303(d) list. This impairment is due to a Virginia Department of Health (VDH) advisory for PCBs in croaker, gizzard shad, and spot. The permittee reported a total PCB concentration of <3.5 µg/L (see Attachment F), which is less than the DEQ established QL. Consequently, the discharge is not considered to be a source of PCBs; therefore, effluent limitations have not been included in the 2012 permit. It is anticipated that the discharge will not cause or contribute to this impairment.

The receiving stream segment is also listed as impaired for not supporting the Aquatic Life Use. The polyhaline segment of the York River, YRKPH, failed the open water summer dissolved (DO) criteria, the shallow-water submerged aquatic vegetation (SAV) criterion, and the Chesapeake Bay estuarine benthic criteria. The 2012 permit includes a BEJ minimum monthly average limitation of 5.0 mg/L and a BEJ minimum instantaneous limitation of 4.3 mg/L for dissolved oxygen that ensure compliance with the DO water quality standards prior to discharge. Give these limits this facility can neither cause nor contribute to the observed violations of the DO criteria.

The facility was also included in the annual aggregate TN, TP, and TSS (which are directly linked to the propagation of SAV) wasteload allocations for non-significant dischargers in the EPA approved (12/29/2010) Chesapeake Bay TMDL. VIMS is authorized by rule to discharge TN and TP in the Chesapeake Bay watershed under 9VAC25-820-70.A.2, which ensures compliance with the TMDL. The facility is not subject to any technology-based TSS requirements of the Clean Water Act; therefore, a TSS limitation has not been included in the permit. As long as the aggregate TSS loading (for all non-significant dischargers) is less than the aggregate TSS loading contained in the Watershed Implementation Plan the permit is considered to be consistent with the TMDL. It is anticipated that the discharge will not cause or contribute to the observed violations of the SAV criterion.

The cause of the estuarine benthic impairment is unknown at this time. However, benthic impairments can typically be attributed to low dissolved oxygen levels, elevated levels of toxics, and/or elevated levels of TSS in the receiving stream. The 2012 permit includes a minimum monthly average and a minimum instantaneous dissolved oxygen limitation. No permit limitations were necessary to limit the discharge of toxics. Additionally, the facility was included in the annual aggregate TSS wasteload allocation for non-significant dischargers in the YRKP segment of the Chesapeake Bay TMDL. Consequently, it is anticipated that the discharge will not cause or contribute to this impairment.

During the 2010 Water Quality Assessment the York River was considered fully supporting of the Recreation and Shellfish Uses; the Wildlife Use was not assessed. Although the York River is fully supporting of the Shellfish Use, the facility is located within the study area for the Sarah Creek and Perrin River Shellfish TMDL (approved by EPA on 6/7/2006 and the State Water Control Board on 6/27/2007). Since Outfall 004 discharges to the mainstem of the York River, which is open for shellfish harvest, the facility was not addressed in the TMDL.

25. Additional Comments:

Previous Board Action:

- None.

Staff Comments:

- The original application was received on 5/9/2011. Additional information was received on 5/25/2011, 6/6/2011, 7/7/2011, 7/11/2011, 8/3/2011 and 8/4/2011. The 2006 permit has not been administratively continued. Additionally, the 2006 permit expired prior to reissuance due to DEQ administrative delays and staff workload.
- The permittee has not yet applied for e-DMR. The permittee was notified of our intent for e-DMR to be used with the next permit action by reissuance reminder letter dated 10/25/2010.
- The permittee is not currently a Virginia Environmental Excellence Program (VEEP) participant.
- The 2011 annual permit maintenance fee was deposited on 9/29/2011.
- This permit reissuance is considered to be non-controversial. The staff believes that the proposed effluent limitations will maintain the Water Quality Standards adopted by the State Water Control Board.
- Storm water discharges from Phase II municipal separate storm sewer systems (MS4s) are regulated under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, which are issued by the Virginia Department of Conservation and Recreation (DCR). VIMS is currently registered for general permit coverage (VAR040052) and the existing general permit expires on 7/8/2013. As a result, the discharge of storm water has not been addressed in this permit.
- The permittee reported a fecal coliform count of <2 CFU/100 mL on EPA Form 2C. Therefore, this parameter is believed absent for the purposes of this evaluation. A fecal coliform limitation has not been included in the 2012 permit.
- Permitting of Outfall 002 (Marine Culture Lab) was discontinued with the 2006 permit reissuance. At the time of permit reissuance, the discharge consisted solely of flow-through aquaculture wastewaters. The warm water species annual production was reported to be less than 100,000 pounds/year; therefore, permitting was not required. In addition to Byrd Hall, the Marine Culture Lab has been demolished and previously permitted Outfall 002 has been eliminated.

- The dissolved oxygen effluent limitation rationale contained in Item 16 of this fact sheet was revised (after public notice) to provide conformance with current agency guidance. This revision did not warrant changes to the permit as public noticed.

EPA Comments:

- EPA has waived the right to comment and/or object to the adequacy of this permit.

VDH-ODW Comments:

- The Virginia Department of Health – Office of Drinking Water reviewed the permit application and had no objections. They have indicated that there are no public water supply intakes within 15 miles downstream of the discharge and that they do not object to the permit.

VDH-DSS Comments:

- Comments were solicited from the Virginia Department of Health – Division of Shellfish Sanitation (VDH-DSS). Since this facility does not discharge treated sewage, VDH-DSS declined to comment on the application.

Owner Comments:

- The permittee reviewed the draft permit package and provided two (2) fact sheet editorial comments on 11/22/2011 via telephone. These comments were adequately addressed on 11/22/2011 with minor revisions to Item 16 (Other Parameters) paragraph #2 and Item 25 (Staff Comments) bullet item #1. On 11/30/2011 the permittee indicated that it had no further comments.

Planning Conformance Statement:

- On 9/23/2011 the Water Resources Development Staff indicated that the discharge is in conformance with the existing planning documents for the area.

26. Summary of Attachments:

Attachment A	Flow Frequency Analysis Memo
Attachment B	Facility Flow Diagram
Attachment C	Topographic Map
Attachment D	Site Inspection Memorandum
Attachment E	Effluent DMR Data
Attachment F	Water Quality Criteria Monitoring Summary
Attachment G	MSTRANTI & STATS Analyses
Attachment H	2007 Projected Nutrient Data
Attachment I	Whole Effluent Toxicity (WET) Memorandum
Attachment J	NPDES Permit Rating Work Sheet

Attachment A

Flow Frequency Analysis Memo

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
Piedmont Regional Office
4949-A Cox Road Glen Allen, Virginia 23060

SUBJECT: Flow Frequency Determination / 303(d) Status
Virginia Institute of Marine Science – VA0071528

TO: Andrew Hammond, P.E.

FROM: Jennifer Palmore, P.G.

DATE: May 13, 2011

COPIES: File

The Virginia Institute of Marine Science is permitted to discharge to the York River at Gloucester Point, VA. Outfall 004 is located at rivermile 8-YRK005.45. Flow frequencies have been requested at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The York River is tidally influenced at the discharge point. Flow frequencies cannot be determined for tidal waters, therefore previous modeling or standard dilution ratios should be used to evaluate the effluent's impact on the water body. The discharge point is located within the estuarine zone of the York River; therefore the aquatic life saltwater criteria should be applied.

During the 2010 305(b)/303(d) Water Quality Assessment, the receiving stream was considered a Category 5A water ("The water quality standard is not attained. The AU is impaired for one or more designated uses by a pollutant(s) and requires a TMDL (303d list).") The applicable fact sheets are attached. The Aquatic Life Use is impaired due to inadequate submerged aquatic vegetation (SAV), low dissolved oxygen, and an impaired benthic community in the York River polyhaline estuary (YRKPH). The Fish Consumption Use is impaired due to a VDH advisory for PCBs in croaker, gizzard shad, and spot. The Recreation and Shellfishing Uses are considered fully supporting and the Wildlife Use was not assessed.

VIMS was addressed in the Chesapeake Bay TMDL, which was approved by the EPA on 12/29/2010. The facility was included in the aggregated total nitrogen, total phosphorus, and total suspended solids wasteload allocations for non-significant wastewater dischargers in the York River polyhaline estuary (YRKPH).

Although the Shellfishing Use is fully supporting in the York River, the VIMS campus is located within the study area for the Sarah Creek and Perrin River Shellfish TMDL, which was approved by the EPA on 6/7/2006 and by the SWCB on 6/27/2007. However, since the VIMS discharge is to the mainstem York River which is open for harvest, the facility was not addressed in the TMDL.

Water quality data from monitoring station 8-YRK001.64 is attached. The station is located mid-channel on the York River between buoy 24 and Amoco and is approximately 3.8 miles downstream of the discharge.

Due to the benthic community impairment, the York River is considered a Tier 1 water.

If you have any questions concerning this analysis, please let me know.

Appendix A - List of Impaired (Category 5) Waters in 2010

York River Basin

Cause Group Code: YRKPH-DO-BAY

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH

Location: This cause encompasses the entirety of the Lower York River system CBP segment YRKPH.

City / County: Gloucester Co. York Co.

Use(s): Aquatic Life

Cause(s) /

VA Category: Oxygen, Dissolved / 5A

The Aquatic Life and Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. The 30-day dissolved oxygen criteria for open water use failed for the 2008 assessment. There is insufficient data to assess remaining shorter-term dissolved oxygen criteria for this use. During the 2006 cycle, the revised Chesapeake Bay water quality standards were adopted. The York Polyhaline segment failed the Open Water Use's summer dissolved oxygen criteria.

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in
CBP segment YRKPH

Aquatic Life

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
------------------------	----------------------	------------------

Oxygen, Dissolved - Total Impaired Size by Water Type: **26.659**

Sources:

Agriculture

Atmospheric Deposition -
Nitrogen

Industrial Point Source
Discharge

Internal Nutrient Recycling

Loss of Riparian Habitat

Municipal Point Source
Discharges

Sources Outside State
Jurisdiction or Borders

Wet Weather Discharges
(Point Source and
Combination of Stormwater,
SSO or CSO)

Appendix A - List of Impaired (Category 5) Waters in 2010

York River Basin

Cause Group Code: YRKPH-EBEN-BAY **Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH**

Location: This cause encompasses the entirety of the Lower York River system CBP segment YRKPH.

City / County: Gloucester Co. York Co.

Use(s): Aquatic Life

Cause(s) /

VA Category: Estuarine Bioassessments / 5A

The Aquatic Life Use is impaired based on the estuarine bioassessment data to meet the Ches Bay Estuarine Benthic criteria.

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in
CBP segment YRKPH

Aquatic Life

Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
------------------------	----------------------	------------------

Estuarine Bioassessments - Total Impaired Size by Water Type:	26.659	
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Sources:

Source Unknown

Appendix A - List of Impaired (Category 5) Waters in 2010

York River Basin

Cause Group Code: YRKPH-SAV-BAY **Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH**

Location: This cause encompasses the entirety of the Lower York River system CBP segment YRKPH.

City / County: Gloucester Co. York Co.

Use(s): Aquatic Life Shallow-Water Submerged
Aquatic Vegetation

Cause(s) /

VA Category: Aquatic Plants (Macrophytes) / 5A

The Shallow-Water Submerged Aquatic Vegetation Use is impaired based on failure to meet the SAV acreage criteria.

Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Aquatic Life			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	26.659		
Lower York River, Perrin River, Carter, Sarah, Felgates, King and Wormley Creeks and Unsegmented Estuaries in CBP segment YRKPH	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Shallow-Water Submerged Aquatic Vegetation			
Aquatic Plants (Macrophytes) - Total Impaired Size by Water Type:	26.659		

Sources:

Agriculture	Atmospheric Deposition - Nitrogen	Clean Sediments	Industrial Point Source Discharge
Internal Nutrient Recycling	Loss of Riparian Habitat	Municipal Point Source Discharges	Sediment Resuspension (Clean Sediment)
Sources Outside State Jurisdiction or Borders	Wet Weather Discharges (Non-Point Source)	Wet Weather Discharges (Point Source and Combination of Storm water, SSO or CSO)	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/16/1984	S	1	25.9		6.8				
8-YRK001.64	7/16/1984	M	3	25.6		6.2				
8-YRK001.64	7/16/1984	M	5	25.3		5.6				
8-YRK001.64	7/16/1984	M	7	25		5.3				
8-YRK001.64	7/16/1984	M	9	24.8		5.2				
8-YRK001.64	7/16/1984	M	11	23.9		4.6				
8-YRK001.64	7/16/1984	M	13	23.8		3.4				
8-YRK001.64	7/16/1984	B	15	23.6		2.4				
8-YRK001.64	7/16/1984	S	6	23.6		2.4				
8-YRK001.64	8/14/1984	S	13	26.37	8.1	2.5				1.4
8-YRK001.64	8/14/1984	S	1	28.52	8.1	6.68				1.4
8-YRK001.64	9/4/1984	S	1	25.98	7.8	6	4.56		19.2	1
8-YRK001.64	9/4/1984	M	3	25.86		5.2			19.72	
8-YRK001.64	9/4/1984	M	5	25.7		5.1			20.1	
8-YRK001.64	9/4/1984	M	7	25.7		4.9			20.36	
8-YRK001.64	9/4/1984	M	9	25.7		4.8			20.7	
8-YRK001.64	9/4/1984	M	11	25.7		4.7			20.9	
8-YRK001.64	9/4/1984	B	13	25.7		4.2	3.8		18.9	
8-YRK001.64	9/14/1984	S	3	25.25		6.74				
8-YRK001.64	9/14/1984	M	5	25.24		6.77				
8-YRK001.64	9/14/1984	M	7	25.24		6.72				
8-YRK001.64	9/14/1984	M	9	25.24		6.7				
8-YRK001.64	9/14/1984	M	11	25.24		6.7				
8-YRK001.64	9/14/1984	M	13	25.23		6.59				
8-YRK001.64	9/14/1984	M	15	25.22		6.5				
8-YRK001.64	9/14/1984	B	17	25.21		6.43				
8-YRK001.64	9/14/1984	S	1	25.2	7.7	6.79				1.1
8-YRK001.64	9/24/1984	S	1	22.98	7.6	8.7	8.18		19.54	1.6
8-YRK001.64	9/24/1984	M	3	22.9		8.3			19.6	
8-YRK001.64	9/24/1984	M	5	22.79		7.7			19.58	
8-YRK001.64	9/24/1984	M	7	22.77		7.5			19.73	
8-YRK001.64	9/24/1984	M	9	22.8		7			19.72	
8-YRK001.64	9/24/1984	M	11	22.68		6.6			19.99	
8-YRK001.64	9/24/1984	B	13	22.59	7.6	5.6			20.66	
8-YRK001.64	10/12/1984	S	1	20.11	7.3	7.8	7.4			1.1
8-YRK001.64	10/12/1984	M	3	20.11		7.8				
8-YRK001.64	10/12/1984	M	5	20.12		7.9				
8-YRK001.64	10/12/1984	M	7	20.12		7.8				
8-YRK001.64	10/12/1984	M	9	20.11		7.8				
8-YRK001.64	10/12/1984	M	11	20.1		7.8				
8-YRK001.64	10/12/1984	M	13	20.1		7.8				
8-YRK001.64	10/12/1984	M	15	20.09		7.8				
8-YRK001.64	10/12/1984	B	17	20.08		7.8	7.4			
8-YRK001.64	10/30/1984	S	3	20.93		6			21.54	
8-YRK001.64	10/30/1984	M	5	20.85		7.9			21.79	
8-YRK001.64	10/30/1984	M	7	20.82		6.5			21.79	
8-YRK001.64	10/30/1984	M	9	20.81		6.6			21.89	
8-YRK001.64	10/30/1984	B	11	20.9		6.8	6.42		21.88	
8-YRK001.64	10/30/1984	S	1	20.92	6.9	7.9	5.98		21.54	1.5
8-YRK001.64	11/15/1984	S	1	12.7	7.36	7.2	8.8		22.1	
8-YRK001.64	11/15/1984	M	3	13		7.1			22.5	
8-YRK001.64	11/15/1984	M	5	13.1		7.1			22.7	
8-YRK001.64	11/15/1984	M	7	13		7.2			22.9	
8-YRK001.64	11/15/1984	M	9	12.8		7.3			23.1	
8-YRK001.64	11/15/1984	B	10	12.8	7.62	7.3	8.11		23.1	
8-YRK001.64	12/13/1984	S	1	7.44	8	9.88	10.01		20.06	1.5
8-YRK001.64	12/13/1984	M	3	7.4		9.85			20.55	
8-YRK001.64	12/13/1984	M	5	7.32		9.83			20.82	
8-YRK001.64	12/13/1984	M	7	7.32		9.71			20.99	
8-YRK001.64	12/13/1984	M	9	7.32		9.71			21.08	
8-YRK001.64	12/13/1984	M	11	7.29		9.71			21.3	
8-YRK001.64	12/13/1984	M	13	7.29		9.65			21.56	
8-YRK001.64	12/13/1984	B	14	7.3	8.1	9.66	9.9		21.84	
8-YRK001.64	2/11/1985	S	1	0.92	7.6	13.8	13.5		19.85	1.3
8-YRK001.64	2/11/1985	M	3	0.95		13.6			20.84	
8-YRK001.64	2/11/1985	M	5	0.94		13.3			21.02	
8-YRK001.64	2/11/1985	B	10	0.76	7.1	13	12.7		21.53	
8-YRK001.64	3/12/1985	S	1	8.2	8.4	11.7	10.9		20	1.5
8-YRK001.64	3/12/1985	M	3	8.1		11.7			19.7	
8-YRK001.64	3/12/1985	M	5	8.1		11.7			19.7	
8-YRK001.64	3/12/1985	M	7	7.7		11.6			20.3	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/12/1985	M	9	7.9		11.8			19.9	
8-YRK001.64	3/12/1985	B	10	7.5	8.75	11.7	10.9		20.2	
8-YRK001.64	3/26/1985	S	1	7.53	7.6	12.6	10.4		20.49	2
8-YRK001.64	3/26/1985	M	3	7.54		10			20.89	
8-YRK001.64	3/26/1985	M	5	7.53		9.3			21.01	
8-YRK001.64	3/26/1985	M	7	7.53		10.4			21.66	
8-YRK001.64	3/26/1985	M	9	7.54		11.8			21.79	
8-YRK001.64	3/26/1985	B	11	7.52	7.5	12.7	9.5		21.84	
8-YRK001.64	4/11/1985	S	1	11.2		8.7	8.7		20.6	2
8-YRK001.64	4/11/1985	M	3	11.3		8.3			20.8	
8-YRK001.64	4/11/1985	M	5	11.4		8			21.6	
8-YRK001.64	4/11/1985	M	7	11.5		8.1			21.4	
8-YRK001.64	4/11/1985	B	10	11.4	7.3	8.2	8.3		21.4	
8-YRK001.64	4/11/1985	S	1	12.5	6.7	8.4	8.5		8.2	0.5
8-YRK001.64	4/11/1985	M	3	12.1		8.3			8.7	
8-YRK001.64	4/11/1985	B	5	12.1	6.7	8.2	8.4		9.5	
8-YRK001.64	4/25/1985	S	1	18.12	7.8	9.01	7.7		21	2.7
8-YRK001.64	4/25/1985	M	3	18.1		9			21	
8-YRK001.64	4/25/1985	M	5	18.07		8.9			21	
8-YRK001.64	4/25/1985	M	7	17.94		8.8			21.1	
8-YRK001.64	4/25/1985	M	9	17.57		8.7			21.2	
8-YRK001.64	4/25/1985	M	11	17.31		8.9			21.3	
8-YRK001.64	4/25/1985	M	13	16.63		8.2			22.4	
8-YRK001.64	4/25/1985	M	15	14.86		7.2			22.6	
8-YRK001.64	4/25/1985	M	17	14.25		7.1			23.1	
8-YRK001.64	4/25/1985	M	19	13.67		7			23.7	
8-YRK001.64	4/25/1985	B	19.99	13.65	8.1	7	6.1		23.8	
8-YRK001.64	5/9/1985	S	0.3	18.9	7.6		7.2			
8-YRK001.64	5/9/1985	M	1	18.91	7.6	7.2	7.6		21.79	2
8-YRK001.64	5/9/1985	M	3	18.9		7.1			21.75	
8-YRK001.64	5/9/1985	M	5	18.85		7			21.79	
8-YRK001.64	5/9/1985	M	7	18.82		6.9			21.76	
8-YRK001.64	5/9/1985	M	9	18.81		6.8			21.74	
8-YRK001.64	5/9/1985	M	11	18.72		6.7			21.77	
8-YRK001.64	5/9/1985	M	13	18.74		6.7			21.78	
8-YRK001.64	5/9/1985	M	15	18.68		6.7			21.89	
8-YRK001.64	5/9/1985	M	17	18.64		6.8			21.86	
8-YRK001.64	5/9/1985	M	19	18.73		6.8			21.9	
8-YRK001.64	5/9/1985	M	20.99	18.68		6.8			21.93	
8-YRK001.64	5/9/1985	B	21.99	18.62	7.7	6.8	6.8		21.79	
8-YRK001.64	6/6/1985	S	1	23.76	8.9	6.5	6.1		22.1	1.8
8-YRK001.64	6/6/1985	M	3	23.8		6.4			22.1	
8-YRK001.64	6/6/1985	M	5	23.72		6.4			22	
8-YRK001.64	6/6/1985	M	7	23.8		6.3			22.1	
8-YRK001.64	6/6/1985	M	9	23.89		6.2			22.2	
8-YRK001.64	6/6/1985	M	11	23.74		6.2			22.08	
8-YRK001.64	6/6/1985	M	13	23.72		6.2			22	
8-YRK001.64	6/6/1985	M	15	23.8		6			22.12	
8-YRK001.64	6/6/1985	M	17	23.62		5.8			22.06	
8-YRK001.64	6/6/1985	B	19	23.6	8.9	5.9	5.7		22.12	
8-YRK001.64	6/20/1985	S	1		8.3	6.8	6.7		22.84	1.5
8-YRK001.64	6/20/1985	M	3	23.6		6.3			22.9	
8-YRK001.64	6/20/1985	M	5	23		5.9			22.9	
8-YRK001.64	6/20/1985	M	7	23.74		5.7			23	
8-YRK001.64	6/20/1985	M	9	23.6		4.8			23.36	
8-YRK001.64	6/20/1985	M	11	22.18		3.5			25.7	
8-YRK001.64	6/20/1985	M	13	21.9		3.4			25.9	
8-YRK001.64	6/20/1985	M	15	21.66		3.4			26.22	
8-YRK001.64	6/20/1985	M	17	38		3.4			26.4	
8-YRK001.64	6/20/1985	M	19	38.12		3.4			26.6	
8-YRK001.64	6/20/1985	M	20.99	38.8		3.5			26.56	
8-YRK001.64	6/20/1985	B	21.99	38.2	8.3	3.5	3.7		26.6	
8-YRK001.64	7/3/1985	S	1	23.9	7.6	5.9	6.2		23.9	1.4
8-YRK001.64	7/3/1985	M	3	23.9		5.8			23.9	
8-YRK001.64	7/3/1985	M	5	23.9		5.9			23.74	
8-YRK001.64	7/3/1985	M	7	23.9		5.8			23.6	
8-YRK001.64	7/3/1985	B	9	23.9	7.5	5.8	5		23.9	
8-YRK001.64	7/18/1985	S	1		7.91	8.1	6		23.3	1.8
8-YRK001.64	7/18/1985	M	3	37.7		8			23.3	
8-YRK001.64	7/18/1985	M	5	37.66		7.6			23.4	
8-YRK001.64	7/18/1985	M	7	36.6		6.4			22.8	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/18/1985	M	9	37.66		5.4			23.6	
8-YRK001.64	7/18/1985	B	11	39.01	7.7	4	3.5		25.2	
8-YRK001.64	8/6/1985	S	1	26	7.97	7.6	8.7		24	1.2
8-YRK001.64	8/6/1985	M	3	25.9		6.7			24.2	
8-YRK001.64	8/6/1985	M	5	25.9		6.4			24	
8-YRK001.64	8/6/1985	M	7	25.9		6.2			24.2	
8-YRK001.64	8/6/1985	M	9	25.8		6.1			24.3	
8-YRK001.64	8/6/1985	M	11	25.8		5.8			24.3	
8-YRK001.64	8/6/1985	M	13	25.7		5.8			24.2	
8-YRK001.64	8/6/1985	M	15	25.7		5.8			24.2	
8-YRK001.64	8/6/1985	B	17	25.6	7.85	5.6			24.4	
8-YRK001.64	8/21/1985	S	1	27.11	7.82	4.2	4.18		24.53	1.3
8-YRK001.64	8/21/1985	M	3	27.03		4.2			24.55	
8-YRK001.64	8/21/1985	M	5	26.96		4.2			24.54	
8-YRK001.64	8/21/1985	M	7	27.06		4.1			24.56	
8-YRK001.64	8/21/1985	M	9	27.02		4.1			24.54	
8-YRK001.64	8/21/1985	M	11	27.04		4.1			24.58	
8-YRK001.64	8/21/1985	M	13	26.98		4			24.57	
8-YRK001.64	8/21/1985	B	14	26.98	7.58	3.9	4.49		24.6	
8-YRK001.64	9/5/1985	S	1	27.42	7.76	5.6	5.99		22.28	1.8
8-YRK001.64	9/5/1985	M	3	27.14		4.5			23.33	
8-YRK001.64	9/5/1985	M	5	26.91		4.1			24.04	
8-YRK001.64	9/5/1985	M	7	26.56		3.8			24.57	
8-YRK001.64	9/5/1985	M	9	26.5		4			24.92	
8-YRK001.64	9/5/1985	B	11	26.42	7.84	3.9	3.94		25.15	
8-YRK001.64	9/18/1985	S	1	23.12	7.76	5.1	5.4		23.65	1.2
8-YRK001.64	9/18/1985	M	3	23.1		5.1			23.57	
8-YRK001.64	9/18/1985	M	5	23.2		5.1			23.5	
8-YRK001.64	9/18/1985	M	7	22.98		5.1			23.64	
8-YRK001.64	9/18/1985	M	9	22.98		5.1			23.62	
8-YRK001.64	9/18/1985	B	11	23.3	7.79	5	5.1		23.65	
8-YRK001.64	10/3/1985	S	1	22.38	7.42	6	6.1		22.18	1.5
8-YRK001.64	10/3/1985	M	3	22.42		5.9			22.25	
8-YRK001.64	10/3/1985	M	5	22.36		5.7			22.36	
8-YRK001.64	10/3/1985	M	7	22.36		5.8			22.39	
8-YRK001.64	10/3/1985	M	9	22.38		5.7			22.52	
8-YRK001.64	10/3/1985	B	10	22.28	6.75	5.7	5.7		22.69	
8-YRK001.64	10/17/1985	S	1	21.56	8.06	6.3	6.6		22.18	1.6
8-YRK001.64	10/17/1985	M	3	21.6		6.3			22.24	
8-YRK001.64	10/17/1985	M	5	21.58		6.3			22.38	
8-YRK001.64	10/17/1985	M	7	21.68		6			22.5	
8-YRK001.64	10/17/1985	M	9	21.7		6.1			23	
8-YRK001.64	10/17/1985	M	11	21.54		5.9			23	
8-YRK001.64	10/17/1985	B	12	21.9	7.2	6			23.24	
8-YRK001.64	11/19/1985	S	1	16.08	8.3	7.5	7.85		19.78	1.2
8-YRK001.64	11/19/1985	M	3	16.18		7.2			22.44	
8-YRK001.64	11/19/1985	M	5	16.22		7.2			23.3	
8-YRK001.64	11/19/1985	M	7	16.16		7.2			23.62	
8-YRK001.64	11/19/1985	B	9	16.18	8.47	7.8	7.74		23.8	
8-YRK001.64	12/5/1985	S	1	10.8	8.1	8.9	8.75		18.8	1.3
8-YRK001.64	12/5/1985	M	3	11.3		8.8			19	
8-YRK001.64	12/5/1985	M	5	11.5		8.7			20.04	
8-YRK001.64	12/5/1985	M	7	11.6		8.7			21	
8-YRK001.64	12/5/1985	M	9	11.2		8.8			21.7	
8-YRK001.64	12/5/1985	B	11	10.8	8.2	8.6	8.72		21.68	
8-YRK001.64	1/16/1986	S	1	2.08	8.52	12.8	12.64		20.15	0.8
8-YRK001.64	1/16/1986	M	3	2.8		12.5			20.95	
8-YRK001.64	1/16/1986	M	5	3.02		12.2			21.36	
8-YRK001.64	1/16/1986	M	7	3.04		12.1			21.68	
8-YRK001.64	1/16/1986	M	9	3.08		12.1			21.86	
8-YRK001.64	1/16/1986	B	11	3.15	8.41	12.2	11.42		21.98	
8-YRK001.64	2/13/1986	S	1	3.57	8.05	12.4	11.13		20.15	1.4
8-YRK001.64	2/13/1986	M	3	3.59		12.4			20.11	
8-YRK001.64	2/13/1986	M	5	3.64		12.3			20.28	
8-YRK001.64	2/13/1986	M	7	3.74		12.3			20.26	
8-YRK001.64	2/13/1986	M	9	3.82		12.3			20.44	
8-YRK001.64	2/13/1986	B	11	3.79	7.81	12.5	10.97		20.56	
8-YRK001.64	3/13/1986	S	1	5.98	8.35	11.2	11.6		19.8	1.3
8-YRK001.64	3/13/1986	M	3	5.89		11.1			19.89	
8-YRK001.64	3/13/1986	M	5	5.9		11			19.97	
8-YRK001.64	3/13/1986	M	7	5.82		11			19.96	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/13/1986	M	9	5.8		11			20.06	
8-YRK001.64	3/13/1986	B	10	5.8	8.38	10.9	11.59		20.17	
8-YRK001.64	3/27/1986	S	1	9.68	8.13	9.2	8.66		18.19	1.1
8-YRK001.64	3/27/1986	M	3	9.79		9.2			18.19	
8-YRK001.64	3/27/1986	M	5	9.78		9.2			18.3	
8-YRK001.64	3/27/1986	M	7	9.2		9			18.58	
8-YRK001.64	3/27/1986	M	9	9.2		9			18.62	
8-YRK001.64	3/27/1986	B	10	9	8	9.5	9.22		11.8	
8-YRK001.64	4/14/1986	S	1	12.5	8.02	9	9.47		21.9	2
8-YRK001.64	4/14/1986	M	3	12.18		8.9			21.86	
8-YRK001.64	4/14/1986	M	5	12.65		8.9			22.46	
8-YRK001.64	4/14/1986	M	7	12.52		8.7			21.94	
8-YRK001.64	4/14/1986	M	9	12.5		8.6			22.12	
8-YRK001.64	4/14/1986	M	11	12.66		8.6			22.72	
8-YRK001.64	4/14/1986	M	13	12.3		8.1			22.8	
8-YRK001.64	4/14/1986	M	15	11.4		7.8			24.34	
8-YRK001.64	4/14/1986	B	17	11.25	7.98	6.8	6.42		26.21	
8-YRK001.64	4/29/1986	S	1	14.64	7.96	10.3	9.72		19.26	2
8-YRK001.64	4/29/1986	M	3	14.67		10.3			19.35	
8-YRK001.64	4/29/1986	M	5	14.58		10.3			19.3	
8-YRK001.64	4/29/1986	M	7	14.5		10.1			19.37	
8-YRK001.64	4/29/1986	M	9	14.42		9.9			19.42	
8-YRK001.64	4/29/1986	M	11	14.21		9.7			19.4	
8-YRK001.64	4/29/1986	M	13	14.1		9.5			19.39	
8-YRK001.64	4/29/1986	M	15	14		9.5			19.39	
8-YRK001.64	4/29/1986	M	17	13.86		9.4			19.44	
8-YRK001.64	4/29/1986	M	19	13.83		9.3			19.44	
8-YRK001.64	4/29/1986	M	20.99	13.83		9.3			19.44	
8-YRK001.64	4/29/1986	B	21.99	13.8	7.79	9.4	8.27		19.43	
8-YRK001.64	5/12/1986	S	1	16.68	7.84	8.1	7.72		20.32	1.3
8-YRK001.64	5/12/1986	M	3	16.7		8.1			20.4	
8-YRK001.64	5/12/1986	M	5	16.7		8			20.38	
8-YRK001.64	5/12/1986	M	7	16.78		7.9			20.4	
8-YRK001.64	5/12/1986	M	9	16.62		7.8			20.68	
8-YRK001.64	5/12/1986	B	10	16.7	7.38	7.9	7.87		20.6	
8-YRK001.64	5/28/1986	S	1	20.62	7.56	6.8	6.93		20.62	1
8-YRK001.64	5/28/1986	M	3	20.6		6.7			20.6	
8-YRK001.64	5/28/1986	M	5	20.6		6.5			20.6	
8-YRK001.64	5/28/1986	M	7	20.57		6.4			20.65	
8-YRK001.64	5/28/1986	M	9	20.58		6.2			20.58	
8-YRK001.64	5/28/1986	M	11	20.54		6.1			20.64	
8-YRK001.64	5/28/1986	M	13	20.56		6.1			20.6	
8-YRK001.64	5/28/1986	M	15	20.52		6.1			20.83	
8-YRK001.64	5/28/1986	M	17	20.55		6			20.8	
8-YRK001.64	5/28/1986	M	19	20.51		6			20.81	
8-YRK001.64	5/28/1986	M	20.99	20.46		6			20.87	
8-YRK001.64	5/28/1986	B	21.99	20.5	7.33	6	6.18		20.97	
8-YRK001.64	6/10/1986	M	1	24.22	7.53	6.8	7.9		21.1	1.5
8-YRK001.64	6/10/1986	M	3	24.16		6.6			21.14	
8-YRK001.64	6/10/1986	M	5	24.1		6.4			21.09	
8-YRK001.64	6/10/1986	M	7	24		5.9			21.18	
8-YRK001.64	6/10/1986	M	9	23.6		5			21.68	
8-YRK001.64	6/10/1986	M	11	22.01		3.7			22.94	
8-YRK001.64	6/10/1986	M	13	21.09		3.7			23.84	
8-YRK001.64	6/10/1986	M	15	20.46		3.6			24.42	
8-YRK001.64	6/10/1986	M	17	20.28		3.6			24.78	
8-YRK001.64	6/10/1986	M	19	20.31		3.6			25	
8-YRK001.64	6/10/1986	B	19.99	20.32	7.35	3.6	3.55		24.81	
8-YRK001.64	6/25/1986	S	1	24.65	7.86	5.5	5.92		22.67	0.9
8-YRK001.64	6/25/1986	M	3	24.84		5.5			22.67	
8-YRK001.64	6/25/1986	M	5	24.78		5.4			22.39	
8-YRK001.64	6/25/1986	M	7	24.82		5.3			22.94	
8-YRK001.64	6/25/1986	M	9	24.7		5.2			22.77	
8-YRK001.64	6/25/1986	M	11	24.61		5.2			22.94	
8-YRK001.64	6/25/1986	M	13	24.43		5			23.22	
8-YRK001.64	6/25/1986	M	15	24.21		4.9			23.57	
8-YRK001.64	6/25/1986	M	17	23.78		4.8			23.55	
8-YRK001.64	6/25/1986	B	19	23.4	7.7	4.7	5.16		24.66	
8-YRK001.64	7/9/1986	S	1	27.52	8.12	8	8.27		23.65	1.4
8-YRK001.64	7/9/1986	M	3	27.48		7.7			23.61	
8-YRK001.64	7/9/1986	M	5	27.38		7.3			23.63	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/9/1986	M	7	26.8		5.7			24.07	
8-YRK001.64	7/9/1986	M	9	25.66		3.9			24.91	
8-YRK001.64	7/9/1986	M	11	24.25		2.7			25.85	
8-YRK001.64	7/9/1986	M	13	23.39		2.3			26.56	
8-YRK001.64	7/9/1986	M	15	23.07		2.2			26.82	
8-YRK001.64	7/9/1986	M	17	22.65		2.1			27.26	
8-YRK001.64	7/9/1986	M	19	22.35		2.2			27.56	
8-YRK001.64	7/9/1986	B	19.99	22.28	7.49	2.3	2.13		27.51	
8-YRK001.64	7/23/1986	S	1	28.09		4.7	4.58		23.44	1.4
8-YRK001.64	7/23/1986	M	3	28.04		4.7			23.5	
8-YRK001.64	7/23/1986	M	5	28.03		4.2			23.68	
8-YRK001.64	7/23/1986	M	7	27.85		4.1			23.76	
8-YRK001.64	7/23/1986	M	9	27.94		4			23.85	
8-YRK001.64	7/23/1986	M	11	27.92		4			23.78	
8-YRK001.64	7/23/1986	M	13	27.89		3.9			23.78	
8-YRK001.64	7/23/1986	M	15	27.56		3.5			24.24	
8-YRK001.64	7/23/1986	M	17	27.28		2.7			24.5	
8-YRK001.64	7/23/1986	M	19	26.81		2.5			24.65	
8-YRK001.64	7/23/1986	B	20.99	26.75		2.3	2.3		24.72	
8-YRK001.64	8/7/1986	S	1	27.72	8.34	6.4	6.71		23.72	2.2
8-YRK001.64	8/7/1986	M	3	28.28		6.2			24.24	
8-YRK001.64	8/7/1986	M	5	28.46		6.1			24.5	
8-YRK001.64	8/7/1986	M	7	28.36		6			24.62	
8-YRK001.64	8/7/1986	M	9	28.02		5.5			25.08	
8-YRK001.64	8/7/1986	M	11	27.56		4.4			25.28	
8-YRK001.64	8/7/1986	M	13	27.12		3.2			25.72	
8-YRK001.64	8/7/1986	M	15	25.96		1.5			26.86	
8-YRK001.64	8/7/1986	M	17	25.28		0.9			27.82	
8-YRK001.64	8/7/1986	M	19	24.74		0.7			28.36	
8-YRK001.64	8/7/1986	B	20.99	24.9	7.45	0.7			28.46	
8-YRK001.64	8/27/1986	S	1	25.62	8.32	6.7	6.2		23.88	1
8-YRK001.64	8/27/1986	M	3	25.55		6.7			24.07	
8-YRK001.64	8/27/1986	M	5	25.61		6.6			23.9	
8-YRK001.64	8/27/1986	M	7	25.52		6.5			23.89	
8-YRK001.64	8/27/1986	M	9	25.4		6.2			24.57	
8-YRK001.64	8/27/1986	M	11	25.28		4.9			25.83	
8-YRK001.64	8/27/1986	M	13	25.06		5.1			25.56	
8-YRK001.64	8/27/1986	B	14	25.09	8.27	5.1	4.66		25.67	
8-YRK001.64	9/8/1986	S	1	23.9	7.13	5.4	5.9		23.51	1.2
8-YRK001.64	9/8/1986	M	3	24.04		5.3			23.28	
8-YRK001.64	9/8/1986	M	5	24.12		5.3			23.68	
8-YRK001.64	9/8/1986	M	7	24.13		5.3			23.7	
8-YRK001.64	9/8/1986	M	9	24.02		5.2			23.81	
8-YRK001.64	9/8/1986	M	11	24.01		5			24.03	
8-YRK001.64	9/8/1986	M	13	24.02		5			24.26	
8-YRK001.64	9/8/1986	M	15	23.75		4.8			24.33	
8-YRK001.64	9/8/1986	M	17	23.74		4.8			24.43	
8-YRK001.64	9/8/1986	M	19	23.48		4.5			25.01	
8-YRK001.64	9/8/1986	B	20.99	23.53	7.23	4.5	5.51		24.89	
8-YRK001.64	9/24/1986	S	1	23.5	7.84	6.2	6.01		23.91	1.4
8-YRK001.64	9/24/1986	M	3	23.55		6			24.04	
8-YRK001.64	9/24/1986	M	5	23.6		6.2			24.09	
8-YRK001.64	9/24/1986	M	7	23.18		5.9			24.73	
8-YRK001.64	9/24/1986	M	9	22.93		6.2			24.87	
8-YRK001.64	9/24/1986	M	11	22.88		6.3			25.11	
8-YRK001.64	9/24/1986	M	13	22.65		5.8			26.32	
8-YRK001.64	9/24/1986	M	15	22.56		5.4			26.61	
8-YRK001.64	9/24/1986	B	16	22.54	7.62	5.4	5.44		26.76	
8-YRK001.64	10/8/1986	S	1	23.28	6.9	5.3	5.47		25.3	1.6
8-YRK001.64	10/8/1986	M	3	23.32		5.3			25.34	
8-YRK001.64	10/8/1986	M	5	23.4		5.2			25.38	
8-YRK001.64	10/8/1986	M	7	23.36		5.2			25.45	
8-YRK001.64	10/8/1986	M	9	23.4		5.2			25.36	
8-YRK001.64	10/8/1986	M	11	23.4		5.3			25.44	
8-YRK001.64	10/8/1986	M	13	23.36		5.3			25.41	
8-YRK001.64	10/8/1986	M	15	23.36		5.3			25.48	
8-YRK001.64	10/8/1986	M	17	23.36		5.3			25.28	
8-YRK001.64	10/8/1986	M	19	23.24		5.3			25.48	
8-YRK001.64	10/8/1986	M	20.99	23.29		5.3			25.47	
8-YRK001.64	10/8/1986	B	21.99	23.36	7.38	5.3	5.24		25.34	
8-YRK001.64	10/29/1986	S	1	17.37	7.75	7.8	7.43		24.42	3

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/29/1986	M	3	17.39		7.8			24.41	
8-YRK001.64	10/29/1986	M	5	17.44		7.8			24.38	
8-YRK001.64	10/29/1986	M	7	17.56		7.7			24.47	
8-YRK001.64	10/29/1986	M	9	17.64		7.4			24.74	
8-YRK001.64	10/29/1986	M	11	17.45		6.6			25.93	
8-YRK001.64	10/29/1986	M	13	17.3		5.3			28.48	
8-YRK001.64	10/29/1986	M	15	17.27		5			29.15	
8-YRK001.64	10/29/1986	M	17	17.23		4.8			29.17	
8-YRK001.64	10/29/1986	M	19	17.16		4.8			29.4	
8-YRK001.64	10/29/1986	B	20.99	17.14	7.63	4.6	4.63		29.43	
8-YRK001.64	12/23/1986	S	1		7.95		8.39			2.9
8-YRK001.64	1/7/1987	S	1	5.6	8.46	10.6	10.65			1.9
8-YRK001.64	1/7/1987	M	3	5.7		10.5				
8-YRK001.64	1/7/1987	M	5	5.8		10.4				
8-YRK001.64	1/7/1987	M	7	5.8		10.5				
8-YRK001.64	1/7/1987	M	9	5.4		10.5				
8-YRK001.64	1/7/1987	M	11	5.5		10.4				
8-YRK001.64	1/7/1987	M	13	5.5		10.4				
8-YRK001.64	1/7/1987	M	15	5.4		10.4				
8-YRK001.64	1/7/1987	M	17	5.3		10.4				
8-YRK001.64	1/7/1987	B	18	5.3	8.23	10.4	10.14			
8-YRK001.64	3/5/1987	S	0.3	5.5	8.77		12.2			
8-YRK001.64	3/5/1987	M	1	5.5	8.77	12.2	11.97		17	1.5
8-YRK001.64	3/5/1987	M	3	5.6		11.9				
8-YRK001.64	3/5/1987	M	5	5.7		11.8				
8-YRK001.64	3/5/1987	M	7	5.8		11.7			18.5	
8-YRK001.64	3/5/1987	M	9	5.7		10.8				
8-YRK001.64	3/5/1987	M	11	5.3		10.7				
8-YRK001.64	3/5/1987	M	13	5.2		10.7				
8-YRK001.64	3/5/1987	B	14	5	8.15	10.7	10.91		25	
8-YRK001.64	3/23/1987	S	1	7.5	8.6		13.46		19.5	1.7
8-YRK001.64	3/23/1987	M	3	7.3					19.5	
8-YRK001.64	3/23/1987	M	5	7.3					19.5	
8-YRK001.64	3/23/1987	M	7	7					19.7	
8-YRK001.64	3/23/1987	M	9	7					19.8	
8-YRK001.64	3/23/1987	M	11	7					20	
8-YRK001.64	3/23/1987	M	13	7					20	
8-YRK001.64	3/23/1987	B	14	7	8.78		10.87		20	
8-YRK001.64	4/2/1987	S	0.3	10			10.2			
8-YRK001.64	4/2/1987	M	0.61	10			10.2			
8-YRK001.64	4/2/1987	M	1	10		10.2	10.39		18.8	1.2
8-YRK001.64	4/2/1987	M	3	9.8		10.2			18.5	
8-YRK001.64	4/2/1987	M	5	10		10.3			18.8	
8-YRK001.64	4/2/1987	M	7	10		10.4			19	
8-YRK001.64	4/2/1987	M	9	10.8		10.8			19.5	
8-YRK001.64	4/2/1987	M	11	11		10.3			20	
8-YRK001.64	4/2/1987	M	13	11		10.3			20	
8-YRK001.64	4/2/1987	M	15	11.5		10.2			21	
8-YRK001.64	4/2/1987	M	17	11.5		10.2			21	
8-YRK001.64	4/2/1987	M	19	11.5		10.2			21	
8-YRK001.64	4/2/1987	B	20.99	11.2		10.2	10.35		21	
8-YRK001.64	4/22/1987	S	1	14		8.3	8.11		16.5	1.1
8-YRK001.64	4/22/1987	M	3	14		8.3			16.5	
8-YRK001.64	4/22/1987	M	5	14		8.4			18.5	
8-YRK001.64	4/22/1987	M	7	14		8.4			18.5	
8-YRK001.64	4/22/1987	M	9	14		8.7			19.25	
8-YRK001.64	4/22/1987	M	11	14		8.8			19.5	
8-YRK001.64	4/22/1987	M	13	13.8		8.7			19.5	
8-YRK001.64	4/22/1987	M	15	14		8.3			19.5	
8-YRK001.64	4/22/1987	B	16	14		8.2	8.75		19.5	
8-YRK001.64	5/7/1987	M	1	16	7.55	9.4	9.08		10.01	1
8-YRK001.64	5/7/1987	M	3	15.12		8.7			15.08	
8-YRK001.64	5/7/1987	M	5	14.82		8.9			16.69	
8-YRK001.64	5/7/1987	M	7	14.49		7.3			17.28	
8-YRK001.64	5/7/1987	M	9	13.26		5.2			18.81	
8-YRK001.64	5/7/1987	M	11	13		4.6			19.43	
8-YRK001.64	5/7/1987	M	13	12.62		4.4			20.69	
8-YRK001.64	5/7/1987	M	15	12.46		4.5			21.82	
8-YRK001.64	5/7/1987	M	17	12.31		4.6			22.6	
8-YRK001.64	5/7/1987	B	19	12.33	7.91	4.5	4.61		23.26	
8-YRK001.64	5/19/1987	S	1	19.63	8.63	7.8	7.78		16.6	1.4

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	5/19/1987	M	3	18.7		6.9			16.86	
8-YRK001.64	5/19/1987	M	5	18.3		6.8			17.26	
8-YRK001.64	5/19/1987	M	7	17.86		6.1			17.32	
8-YRK001.64	5/19/1987	M	9	17.1		5.1			18.05	
8-YRK001.64	5/19/1987	M	11	16.5		4.8			18.73	
8-YRK001.64	5/19/1987	M	13	16.31		5.3			19.31	
8-YRK001.64	5/19/1987	M	15	16.04		5.1			19.73	
8-YRK001.64	5/19/1987	M	17	15.92		5.1			20.01	
8-YRK001.64	5/19/1987	M	19	15.86		5.2			20.12	
8-YRK001.64	5/19/1987	M	20.99	15.71		5.2			20.15	
8-YRK001.64	5/19/1987	B	21.99	15.91	8.67	5.2	5.1		20.16	
8-YRK001.64	6/4/1987	S	0.61	20.1	8.33		3.6			
8-YRK001.64	6/4/1987	M	1	24.06	8.33	8.5	9		17.67	1.3
8-YRK001.64	6/4/1987	M	3	23.53		7.5			18.43	
8-YRK001.64	6/4/1987	M	5	23.36		6.9			18.7	
8-YRK001.64	6/4/1987	M	7	22.03		5.3			19.36	
8-YRK001.64	6/4/1987	M	9	20.11		3.6			20.72	
8-YRK001.64	6/4/1987	M	11	18.77		3			22.49	
8-YRK001.64	6/4/1987	M	13	18.56		3.1			23.04	
8-YRK001.64	6/4/1987	M	15	18.56		3.2			23.38	
8-YRK001.64	6/4/1987	M	17	18.43		3.3			23.71	
8-YRK001.64	6/4/1987	B	18	18.45	7.9	3.4	3.15		23.82	
8-YRK001.64	6/17/1987	S	1	24.31	7.87	4.4	4.63		19.56	1.1
8-YRK001.64	6/17/1987	M	3	24.35		4.2			19.88	
8-YRK001.64	6/17/1987	M	5	24.19		3.9			20.1	
8-YRK001.64	6/17/1987	M	7	23.71		3.8			20.49	
8-YRK001.64	6/17/1987	M	9	23.67		3.9			20.94	
8-YRK001.64	6/17/1987	M	11	23.28		3.9			21.25	
8-YRK001.64	6/17/1987	M	13	23.2		3.7			21.43	
8-YRK001.64	6/17/1987	M	15	23.04		3.6			21.57	
8-YRK001.64	6/17/1987	B	16	23.03	8.16	3.6	3.13		21.65	
8-YRK001.64	7/7/1987	S	0.61	24.9	7.78		3			
8-YRK001.64	7/7/1987	M	1	26.22	7.78	6.5	6.4		22.69	1.2
8-YRK001.64	7/7/1987	M	3	26.19		6.3			22.65	
8-YRK001.64	7/7/1987	M	5	26.06		5.8			23.99	
8-YRK001.64	7/7/1987	M	7	25.43		4.1			23.24	
8-YRK001.64	7/7/1987	M	9	24.9		3			23.61	
8-YRK001.64	7/7/1987	M	11	24.25		2.6			24.13	
8-YRK001.64	7/7/1987	M	13	23.88		2.5			24.6	
8-YRK001.64	7/7/1987	M	15	23.66		2.5			24.91	
8-YRK001.64	7/7/1987	B	16	23.62	7.12	2.5	2.51		25.16	
8-YRK001.64	7/15/1987	S	1	28.03		4.7	4.4		22.21	0.9
8-YRK001.64	7/15/1987	M	3	28.04		4.5			22.1	
8-YRK001.64	7/15/1987	M	5	28		4.5			22.19	
8-YRK001.64	7/15/1987	M	7	27.98		4.5			22.17	
8-YRK001.64	7/15/1987	M	9	27.88		4.3			22.23	
8-YRK001.64	7/15/1987	M	11	27.86		3.7			22.2	
8-YRK001.64	7/15/1987	M	13	27.55		3.4			22.43	
8-YRK001.64	7/15/1987	M	15	27.23		3			22.6	
8-YRK001.64	7/15/1987	M	17	26.5		2.8			22.91	
8-YRK001.64	7/15/1987	B	18	25.98	7.42	2.8	2.63		23.13	
8-YRK001.64	8/26/1987	S	1	26.55	7.7	4.6	5.31		23.81	1.3
8-YRK001.64	8/26/1987	M	3	26.64		4.5			23.84	
8-YRK001.64	8/26/1987	M	5	26.62		4.5			23.91	
8-YRK001.64	8/26/1987	M	7	26.69		4.6			23.98	
8-YRK001.64	8/26/1987	M	9	26.53		4.5			23.96	
8-YRK001.64	8/26/1987	M	11	26.46		4.5			23.98	
8-YRK001.64	8/26/1987	M	13	26.51		4.4			24	
8-YRK001.64	8/26/1987	M	15	26.55		3.6			24.15	
8-YRK001.64	8/26/1987	B	16	26.63	7.48	3.5	4.15		24.38	
8-YRK001.64	9/28/1987	S	1	23.77	6.3	5.1	5.9		23.55	1.2
8-YRK001.64	9/28/1987	M	3	23.88		4.7			23.7	
8-YRK001.64	9/28/1987	M	5	23.96		4.7			23.74	
8-YRK001.64	9/28/1987	M	7	23.97		4.4			23.87	
8-YRK001.64	9/28/1987	M	9	23.97		4.3			23.81	
8-YRK001.64	9/28/1987	M	11	23.88		4.2			23.87	
8-YRK001.64	9/28/1987	M	13	23.93		4.2			23.88	
8-YRK001.64	9/28/1987	M	15	23.88		4.2			23.85	
8-YRK001.64	9/28/1987	M	17	23.86		4			23.82	
8-YRK001.64	9/28/1987	M	19	23.84		4.1			23.84	
8-YRK001.64	9/28/1987	M	20.99	23.83		4.1			23.83	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	9/28/1987	B	21.99	23.84	6.25	4.1	4.45		23.84	
8-YRK001.64	10/29/1987	S	1	14.69	8.28	7.4	8.02		23.04	1.9
8-YRK001.64	10/29/1987	M	3	14.64		7.4			23.07	
8-YRK001.64	10/29/1987	M	5	14.7		7.4			23.05	
8-YRK001.64	10/29/1987	M	7	14.79		7.4			23.17	
8-YRK001.64	10/29/1987	M	9	14.85		7.4			23.22	
8-YRK001.64	10/29/1987	M	11	14.81		7.4			23.3	
8-YRK001.64	10/29/1987	M	13	14.81		7.4			23.3	
8-YRK001.64	10/29/1987	M	15	14.82		7.4			23.38	
8-YRK001.64	10/29/1987	M	17	14.75		7.4			23.46	
8-YRK001.64	10/29/1987	B	19	14.7	8.33	7.5	8.02		23.49	
8-YRK001.64	11/17/1987	S	0.61	11.6			8.1			
8-YRK001.64	11/17/1987	M	1	11.83		9.8	9.02		23.05	2.3
8-YRK001.64	11/17/1987	M	3	11.68		9.5			23.25	
8-YRK001.64	11/17/1987	M	5	11.86		9.4			23.41	
8-YRK001.64	11/17/1987	M	7	11.77		9.1			23.54	
8-YRK001.64	11/17/1987	M	9	11.51		8.5			24.17	
8-YRK001.64	11/17/1987	M	11	11.58		8.1			24.21	
8-YRK001.64	11/17/1987	M	13	11.86		7.8			25.22	
8-YRK001.64	11/17/1987	M	15	12.09		7.1			25.8	
8-YRK001.64	11/17/1987	M	17	12.32		6.9			26.32	
8-YRK001.64	11/17/1987	M	19	12.32		6.8			26.35	
8-YRK001.64	11/17/1987	M	20.99	12.31		6.8			26.24	
8-YRK001.64	11/17/1987	B	21.99	12.38	7.89	6.8	8.64		26.44	
8-YRK001.64	5/5/1988	S	1				8.19			0.4
8-YRK001.64	5/5/1988	B	20.99		7.52		7.63			
8-YRK001.64	7/5/1988	S	1	23.86	7.69	6.24	6.07		22.5	1
8-YRK001.64	7/5/1988	M	3	23.69		5.81			22.5	
8-YRK001.64	7/5/1988	M	5	23.65		7.21			22.5	
8-YRK001.64	7/5/1988	M	7	23.6		7.89			22.5	
8-YRK001.64	7/5/1988	M	9	23.58		7.47			22.4	
8-YRK001.64	7/5/1988	M	11	23.45		5.97			22.5	
8-YRK001.64	7/5/1988	M	13	23.38		5.48			22.5	
8-YRK001.64	7/5/1988	M	15	23.37		5.42			22.6	
8-YRK001.64	7/5/1988	M	17	23.36		5.39			22.5	
8-YRK001.64	7/5/1988	M	19	23.35		5.35			22.5	
8-YRK001.64	7/5/1988	M	20.99	23.33		5.34			22.5	
8-YRK001.64	7/5/1988	B	21.99	23.3	7.49	4.9	4.83		22.6	
8-YRK001.64	8/3/1988	S	1	28.22	7.88	6.23	5.86		25.7	1.2
8-YRK001.64	8/3/1988	M	3	28.21		6.16			25.7	
8-YRK001.64	8/3/1988	M	5	28.21		6.12			25.7	
8-YRK001.64	8/3/1988	M	7	28.18		5.98			25.7	
8-YRK001.64	8/3/1988	M	9	28.17		5.93			25.7	
8-YRK001.64	8/3/1988	M	11	28.15		5.76			25.8	
8-YRK001.64	8/3/1988	M	13	28.06		5.39			25.8	
8-YRK001.64	8/3/1988	M	15	27.81		4.18			25.9	
8-YRK001.64	8/3/1988	M	17	27.4		3.53			25.8	
8-YRK001.64	8/3/1988	B	19	27.42	7.54	3.59	3.96		25.8	
8-YRK001.64	8/17/1988	S	1	28.39	7.41	5.31	4.73		26.6	1.1
8-YRK001.64	8/17/1988	M	3	28.3		4.58			26.7	
8-YRK001.64	8/17/1988	M	5	28.35		4.58			26.8	
8-YRK001.64	8/17/1988	M	7	28.28		4.35			26.8	
8-YRK001.64	8/17/1988	M	9	27.31		3.07			27.4	
8-YRK001.64	8/17/1988	M	11	26.79		2.48			27.7	
8-YRK001.64	8/17/1988	M	13	25.85		1.76			28.6	
8-YRK001.64	8/17/1988	B	14	25.78	7.71	1.78	2.04		28.8	
8-YRK001.64	9/19/1988	S	1	22.99	7.9	7.89			25.3	1.2
8-YRK001.64	9/19/1988	M	3	23.5		6.75			25.5	
8-YRK001.64	9/19/1988	M	5	23.32		6.31			25.8	
8-YRK001.64	9/19/1988	M	7	23.39		6.29			25.8	
8-YRK001.64	9/19/1988	M	9	23.43		6.28			25.9	
8-YRK001.64	9/19/1988	M	11	23.5		6.21			26	
8-YRK001.64	9/19/1988	M	13	23.42		5.73			26	
8-YRK001.64	9/19/1988	B	14	23.4	7.64	5.71			25.9	
8-YRK001.64	9/29/1988	S	1	22.63	7.61	5.65	5.96		25.7	1.2
8-YRK001.64	9/29/1988	M	3	22.63		5.67			25.8	
8-YRK001.64	9/29/1988	M	5	22.62		5.73			25.7	
8-YRK001.64	9/29/1988	M	7	22.61		5.75			25.8	
8-YRK001.64	9/29/1988	M	9	22.61		5.87			25.7	
8-YRK001.64	9/29/1988	B	11	22.6	7.62	5.85	5.32		25.8	
8-YRK001.64	11/3/1988	S	1	13.33	7.71	7.68			27.6	1.6

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	11/3/1988	M	3	13.34		7.64			27.7	
8-YRK001.64	11/3/1988	M	5	13.37		7.64			27.8	
8-YRK001.64	11/3/1988	M	7	13.43		7.59			27.9	
8-YRK001.64	11/3/1988	M	9	13.31		7.63			28.1	
8-YRK001.64	11/3/1988	M	11	13.28		7.6			28.6	
8-YRK001.64	11/3/1988	M	13	13.33		7.18			29.6	
8-YRK001.64	11/3/1988	B	14	13.4	7.7	7.03			29.6	
8-YRK001.64	11/16/1988	S	1	13.42	7.75	8.39	8.73		26	2.1
8-YRK001.64	11/16/1988	M	3	13.42		8.36			26	
8-YRK001.64	11/16/1988	M	5	13.4		8.48			26.2	
8-YRK001.64	11/16/1988	M	7	13.33		8.59			26.2	
8-YRK001.64	11/16/1988	M	9	13.28		8.52			26.2	
8-YRK001.64	11/16/1988	M	11	13.28		8.59			26.2	
8-YRK001.64	11/16/1988	M	13	13.28		8.47			26.3	
8-YRK001.64	11/16/1988	M	15	13.3		8.43			26.2	
8-YRK001.64	11/16/1988	M	17	13.3		8.41			26.2	
8-YRK001.64	11/16/1988	B	18	13.31	7.75	8.46	8.46		26.3	
8-YRK001.64	12/15/1988	S	1	6.3	7.8	9.62	10.38		26.4	
8-YRK001.64	12/15/1988	M	3	6.32		9.65			26.4	
8-YRK001.64	12/15/1988	M	5	6.47		10.39			26.4	
8-YRK001.64	12/15/1988	M	7	6.63		9.6			26.8	
8-YRK001.64	12/15/1988	M	9	6.7		9.51			26.7	
8-YRK001.64	12/15/1988	M	11	6.41		9.95			27.4	
8-YRK001.64	12/15/1988	M	13	6.22		10.8			27.7	
8-YRK001.64	12/15/1988	M	15	6.28		10			28.1	
8-YRK001.64	12/15/1988	B	17	6.37	7.74	9.99	10.22		28	
8-YRK001.64	1/23/1989	S	1	6.25	7.2	12.76			22.1	2
8-YRK001.64	1/23/1989	M	3	6.21		12.35			23.1	
8-YRK001.64	1/23/1989	M	5	6.18		12.06			22.1	
8-YRK001.64	1/23/1989	M	7	6.18		11.81			22.2	
8-YRK001.64	1/23/1989	M	9	6.1		11.55			22.3	
8-YRK001.64	1/23/1989	B	11	6.06	7.48	11.18			22.7	
8-YRK001.64	2/15/1989	S	1	6.6	7.83	10.48			23.6	2.2
8-YRK001.64	2/15/1989	M	3	6.59		10.43			23.6	
8-YRK001.64	2/15/1989	M	5	6.56		10.45			23.7	
8-YRK001.64	2/15/1989	M	7	6.58		10.42			23.6	
8-YRK001.64	2/15/1989	M	9	6.5		10.41			23.6	
8-YRK001.64	2/15/1989	M	11	6.55		10.38			23.6	
8-YRK001.64	2/15/1989	M	13	6.41		10.33			23.5	
8-YRK001.64	2/15/1989	M	15	5.91		10.26			23.6	
8-YRK001.64	2/15/1989	M	17	5.89		10.16			23.8	
8-YRK001.64	2/15/1989	M	19	5.78		9.94			24.2	
8-YRK001.64	2/15/1989	B	19.99	5.84	7.75	9.95			24.5	
8-YRK001.64	3/27/1989	S	1	9.02	7.92	11.03			18.2	1.3
8-YRK001.64	3/27/1989	M	3	8.93		10.86			18.4	
8-YRK001.64	3/27/1989	M	5	8.28		10.23			19.6	
8-YRK001.64	3/27/1989	M	7	7.88		9.88			20.4	
8-YRK001.64	3/27/1989	M	9	7.29		9.58			21	
8-YRK001.64	3/27/1989	M	11	7.04		9.45			22.2	
8-YRK001.64	3/27/1989	M	13	6.97		9.37			22.6	
8-YRK001.64	3/27/1989	M	15	6.84		9.31			23.4	
8-YRK001.64	3/27/1989	B	16	6.85	7.66	9.34			23.7	
8-YRK001.64	4/17/1989	S	1	12.37	7.84	9.65	9.79		17.3	1.4
8-YRK001.64	4/17/1989	M	3	12.14		9.48			19	
8-YRK001.64	4/17/1989	M	5	12.07		9.47			19.2	
8-YRK001.64	4/17/1989	M	7	11.62		9.34			20.6	
8-YRK001.64	4/17/1989	M	9	11.41		9.16			21.2	
8-YRK001.64	4/17/1989	M	11	11.07		8.91			22.1	
8-YRK001.64	4/17/1989	M	13	11.01		8.89			22.5	
8-YRK001.64	4/17/1989	M	15	10.66		8.46			23.5	
8-YRK001.64	4/17/1989	M	17	10.53		8.39			24.3	
8-YRK001.64	4/17/1989	M	19	10.53		8.39			24.3	
8-YRK001.64	4/17/1989	B	20.99	10.54	7.6	8.53	8.53		24.3	
8-YRK001.64	8/7/1989	S	1	27.8	8.13	6.38	6.34		17.1	1.3
8-YRK001.64	8/7/1989	M	3	27.77		6.33			17.1	
8-YRK001.64	8/7/1989	M	5	27.43		4.14			18.2	
8-YRK001.64	8/7/1989	M	7	26.97		3.4			18.4	
8-YRK001.64	8/7/1989	M	9	26.32		2.32			19.9	
8-YRK001.64	8/7/1989	M	11	25.74		1.78			21.3	
8-YRK001.64	8/7/1989	M	13	25.6		1.49			21.8	
8-YRK001.64	8/7/1989	M	15	25.46		1.65			22.2	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	8/7/1989	M	17	25.39		1.51			22.5	
8-YRK001.64	8/7/1989	M	19	25.35		1.64			22.7	
8-YRK001.64	8/7/1989	B	19.99	25.35	7.67	1.87	1.42		22.9	
8-YRK001.64	2/14/1990	S	1	8.53	8.2	9.96			17.6	1.3
8-YRK001.64	2/14/1990	M	3	8.45		9.9			17.9	
8-YRK001.64	2/14/1990	M	5	8.41		9.88			18.1	
8-YRK001.64	2/14/1990	M	7	8.33		9.89			18.3	
8-YRK001.64	2/14/1990	M	9	8.15		9.79			19.1	
8-YRK001.64	2/14/1990	M	11	7.62		9.91			19.2	
8-YRK001.64	2/14/1990	M	13	7.56		9.91			19.6	
8-YRK001.64	2/14/1990	B	15	7.56	8.12	10.26			19.5	
8-YRK001.64	3/14/1990	S	1	10.68	8.13	11.13			17.8	1.4
8-YRK001.64	3/14/1990	M	3	10.7		11.32			17.8	
8-YRK001.64	3/14/1990	M	5	10.63		11.34			17.9	
8-YRK001.64	3/14/1990	M	7	10.08		10.93			18.2	
8-YRK001.64	3/14/1990	M	9	9.97		11			18.3	
8-YRK001.64	3/14/1990	M	11	8.43		9.49			20.7	
8-YRK001.64	3/14/1990	M	13	8.27		9.43			21.2	
8-YRK001.64	3/14/1990	M	15	8.02		9.11			22.4	
8-YRK001.64	3/14/1990	B	16	8.13	7.99	9.58			22.4	
8-YRK001.64	3/29/1990	S	1	10.75	8.08	9.15			18.8	1.7
8-YRK001.64	3/29/1990	M	3	10.75		9.15			18.8	
8-YRK001.64	3/29/1990	M	5	10.76		9.11			18.7	
8-YRK001.64	3/29/1990	M	7	10.78		9.1			18.8	
8-YRK001.64	3/29/1990	M	9	10.78		9.09			18.8	
8-YRK001.64	3/29/1990	M	11	10.78		9.13			18.8	
8-YRK001.64	3/29/1990	M	13	10.78		9.18			18.8	
8-YRK001.64	3/29/1990	B	15	10.76	8.54	9.27			18.8	
8-YRK001.64	4/17/1990	S	1	13.38	7.8	8.61			17	3.5
8-YRK001.64	4/17/1990	M	3	13.45		8.5			17.1	
8-YRK001.64	4/17/1990	M	5	12.37		7.6			17.6	
8-YRK001.64	4/17/1990	M	7	12.15		8.11			17.9	
8-YRK001.64	4/17/1990	M	9	12.09		8.46			18.2	
8-YRK001.64	4/17/1990	M	11	11.89		7.99			18.6	
8-YRK001.64	4/17/1990	B	13	11.62	8.07	8.31			19.9	
8-YRK001.64	4/26/1990	S	1	15.39	7.44	6.15			17.6	1.6
8-YRK001.64	4/26/1990	M	3	15.21		6.2			17.8	
8-YRK001.64	4/26/1990	M	5	15.01		6.13			18.1	
8-YRK001.64	4/26/1990	M	7	14.8		6.08			18.2	
8-YRK001.64	4/26/1990	M	9	14.75		6.13			18.2	
8-YRK001.64	4/26/1990	M	11	14.47		6.15			18.5	
8-YRK001.64	4/26/1990	M	13	14.28		6.25			18.8	
8-YRK001.64	4/26/1990	B	14	14.16	7.71	6.45			18.9	
8-YRK001.64	5/10/1990	S	1	18.84		7.26			18.1	2
8-YRK001.64	5/10/1990	M	3	18.84		7.16			18	
8-YRK001.64	5/10/1990	M	5	18.83		7.16			18	
8-YRK001.64	5/10/1990	M	7	17.51		5.07			20.3	
8-YRK001.64	5/10/1990	M	9	16.91		3.72			22.2	
8-YRK001.64	5/10/1990	M	11	16.87		3.57			22.6	
8-YRK001.64	5/10/1990	M	13	16.59		3.18			23.3	
8-YRK001.64	5/10/1990	B	14	16.52	7.29	3.11			23.9	
8-YRK001.64	5/10/1990	S	0.3	18.8			7.3			
8-YRK001.64	6/4/1990	S	1	21.44	7.52	7.01			14.6	1.9
8-YRK001.64	6/4/1990	M	3	21.53		7.96			15.9	
8-YRK001.64	6/4/1990	M	5	21.25		7.46			15.9	
8-YRK001.64	6/4/1990	M	7	20.96		7.35			17.9	
8-YRK001.64	6/4/1990	M	9	20.75		6.7			18.7	
8-YRK001.64	6/4/1990	M	11	20.33		6.37			19.1	
8-YRK001.64	6/4/1990	M	13	20.24		6.25			19.2	
8-YRK001.64	6/4/1990	B	14	20.25	7.65	6.3			19.2	
8-YRK001.64	6/13/1990	M	1	22.12	7.93	7.84			16	1.8
8-YRK001.64	6/13/1990	M	3	22.05		6.75			17.4	
8-YRK001.64	6/13/1990	M	5	21.95		6.15			18.3	
8-YRK001.64	6/13/1990	M	7	21.58		5.49			19.6	
8-YRK001.64	6/13/1990	M	9	20.22		3.16			23.1	
8-YRK001.64	6/13/1990	M	11	20.18		3.11			23.3	
8-YRK001.64	6/13/1990	M	13	19.98		2.94			23.9	
8-YRK001.64	6/13/1990	B	14	19.98	7.41	2.97			23.9	
8-YRK001.64	6/27/1990	S	1	24.78	7.75	6.45	5.8		18.2	1.7
8-YRK001.64	6/27/1990	M	3	24.8		6.43			18.2	
8-YRK001.64	6/27/1990	M	5	24.84		6.33			18.3	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	6/27/1990	M	7	24.8		6.13			18.2	
8-YRK001.64	6/27/1990	M	9	24.71		5.7			18.4	
8-YRK001.64	6/27/1990	M	11	24.62		5.37			18.5	
8-YRK001.64	6/27/1990	M	13	24.52		4.93			18.5	
8-YRK001.64	6/27/1990	B	14	24.47	7.53	5.1	4.45		18.6	
8-YRK001.64	7/11/1990	S	1	27.06		6.42			19.8	
8-YRK001.64	7/11/1990	M	3	26.87		5.41			20.1	
8-YRK001.64	7/11/1990	M	5	26.72		5.1			20.2	
8-YRK001.64	7/11/1990	M	7	26.45		4.54			20.3	
8-YRK001.64	7/11/1990	M	9	26.26		4.16			20.4	
8-YRK001.64	7/11/1990	M	11	25.54		2.94			21.1	
8-YRK001.64	7/11/1990	B	12	25.1	7.28	2.49			21.6	
8-YRK001.64	7/25/1990	S	1	27.78	7.76	5.49	6.16		20.6	1.3
8-YRK001.64	7/25/1990	M	3	27.78		5.46			20.5	
8-YRK001.64	7/25/1990	M	5	27.77		4.77			20.6	
8-YRK001.64	7/25/1990	M	7	27.69		4.67			20.6	
8-YRK001.64	7/25/1990	M	9	27.49		3.85			20.8	
8-YRK001.64	7/25/1990	M	11	27.5		3.34			21.2	
8-YRK001.64	7/25/1990	M	13	26.83		2.61			21.7	
8-YRK001.64	7/25/1990	B	14	26.46	7.42	2.47	2.4		21.2	
8-YRK001.64	8/8/1990	S	1	26.58	8.41	7.31	7.46		20.5	1.6
8-YRK001.64	8/8/1990	M	3	26.61		7.39			20.6	
8-YRK001.64	8/8/1990	M	5	26.66		5.46			20.9	
8-YRK001.64	8/8/1990	M	7	26.55		5.1			21.1	
8-YRK001.64	8/8/1990	M	9	26.36		2.63			22.3	
8-YRK001.64	8/8/1990	M	11	26.35		2.26			22.5	
8-YRK001.64	8/8/1990	B	13	26.3	7.59	2.19	1.44		22.8	
8-YRK001.64	8/22/1990	S	1	26.88	7.53	4	3.72		19.9	1.6
8-YRK001.64	8/22/1990	M	3	26.91		3.93			19.9	
8-YRK001.64	8/22/1990	M	5	26.96		3.7			20	
8-YRK001.64	8/22/1990	M	7	26.9		3.66			20	
8-YRK001.64	8/22/1990	M	9	26.92		3.52			20.3	
8-YRK001.64	8/22/1990	M	11	26.75		3.22			21	
8-YRK001.64	8/22/1990	M	13	26.64		3.08			21.5	
8-YRK001.64	8/22/1990	B	14	26.54	7.57	3.15	2.28		21.6	
8-YRK001.64	9/10/1990	S	1	26.14	7.44	4.58			17.7	1.3
8-YRK001.64	9/10/1990	M	3	26.13		4.5			17.7	
8-YRK001.64	9/10/1990	M	5	26.13		4.51			17.8	
8-YRK001.64	9/10/1990	M	7	26.12		4.41			17.7	
8-YRK001.64	9/10/1990	M	9	26.1		4.43			17.8	
8-YRK001.64	9/10/1990	M	11	26.05		4.44			17.8	
8-YRK001.64	9/10/1990	M	13	25.99		4.43			17.8	
8-YRK001.64	9/10/1990	B	15	25.86	7.47	3.9			18.6	
8-YRK001.64	9/25/1990	S	1	21.64	7.7	6.64	7.64		17.8	2
8-YRK001.64	9/25/1990	M	3	21.71		6.58			17.9	
8-YRK001.64	9/25/1990	M	5	21.88		6.35			18.1	
8-YRK001.64	9/25/1990	M	7	21.97		6.37			18.7	
8-YRK001.64	9/25/1990	M	9	21.92		6.44			18.7	
8-YRK001.64	9/25/1990	M	11	21.68		6.36			19	
8-YRK001.64	9/25/1990	M	13	21.71		6.06			19.3	
8-YRK001.64	9/25/1990	M	15	21.84		5.82			19.4	
8-YRK001.64	9/25/1990	M	17	21.98		5.56			19.8	
8-YRK001.64	9/25/1990	M	19	22.17		5.17			19.9	
8-YRK001.64	9/25/1990	B	19.99	22.16	7.7	5.17	5.32		20.1	
8-YRK001.64	10/10/1990	S	1	22.28	7.78	6.07	6.32		21.1	1.5
8-YRK001.64	10/10/1990	M	3	22.28		6.07			21	
8-YRK001.64	10/10/1990	M	5	22.34		6.1			21.1	
8-YRK001.64	10/10/1990	M	7	22.39		6.11			21.1	
8-YRK001.64	10/10/1990	M	9	22.3		6.05			21.3	
8-YRK001.64	10/10/1990	M	11	22.16		6			21.4	
8-YRK001.64	10/10/1990	M	13	22.08		5.95			21.4	
8-YRK001.64	10/10/1990	M	15	22.07		6.01			21.5	
8-YRK001.64	10/10/1990	M	17	22.09		6.03			21.6	
8-YRK001.64	10/10/1990	M	19	22.08		6.02			21.6	
8-YRK001.64	10/10/1990	B	20.99	22.08	7.83	6.04	6.75		21.7	
8-YRK001.64	10/24/1990	S	1	20.56	7.81	6.71			21.2	1.8
8-YRK001.64	10/24/1990	M	3	20.56		6.71			21.2	
8-YRK001.64	10/24/1990	M	5	20.55		6.74			21.2	
8-YRK001.64	10/24/1990	M	7	20.53		6.74			21.2	
8-YRK001.64	10/24/1990	M	9	20.53		6.76			21.2	
8-YRK001.64	10/24/1990	M	11	20.51		6.72			21.4	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/24/1990	M	13	20.21		6.72			21.9	
8-YRK001.64	10/24/1990	B	14	20.15	7.95	6.95			21.9	
8-YRK001.64	11/19/1990	S	1	11.86	7.97	8.84			20.4	1.5
8-YRK001.64	11/19/1990	M	3	11.88		8.87			20.4	
8-YRK001.64	11/19/1990	M	5	11.98		8.88			20.6	
8-YRK001.64	11/19/1990	M	7	11.68		8.91			20.6	
8-YRK001.64	11/19/1990	M	9	11.74		8.97			20.6	
8-YRK001.64	11/19/1990	M	11	11.83		8.95			20.7	
8-YRK001.64	11/19/1990	M	13	11.93		8.98			20.8	
8-YRK001.64	11/19/1990	M	15	11.89		8.95			21	
8-YRK001.64	11/19/1990	B	17	11.83	8.03	9.03			21.1	
8-YRK001.64	12/6/1990	S	1	10.52	7.79	8.72	8.89		21.7	3
8-YRK001.64	12/6/1990	M	3	10.56		8.73			21.8	
8-YRK001.64	12/6/1990	M	5	10.56		8.72			21.7	
8-YRK001.64	12/6/1990	M	7	10.53		8.73			21.9	
8-YRK001.64	12/6/1990	M	9	10.81		8.59			22.2	
8-YRK001.64	12/6/1990	M	11	10.87		8.48			22.2	
8-YRK001.64	12/6/1990	M	13	11.01		8.23			23.4	
8-YRK001.64	12/6/1990	B	14	11.03	7.79	8.28	8.28		23.6	
8-YRK001.64	1/3/1991	S	1	8.88	8.01	10.87	10.75		19.1	1.6
8-YRK001.64	1/3/1991	M	3	8.92		10.88			19.2	
8-YRK001.64	1/3/1991	M	5	8.95		10.9			19.3	
8-YRK001.64	1/3/1991	M	7	8.96		10.8			19.3	
8-YRK001.64	1/3/1991	M	9	8.9		10.9			19.2	
8-YRK001.64	1/3/1991	M	11	8.93		10.81			19.3	
8-YRK001.64	1/3/1991	M	13	8.98		10.91			19.4	
8-YRK001.64	1/3/1991	B	14	8.98	7.95	11	11.01		19.5	
8-YRK001.64	2/19/1991	S	1	6.54	8.03	10.6			19.1	1.8
8-YRK001.64	2/19/1991	M	3	6.44		10.56			19.1	
8-YRK001.64	2/19/1991	M	5	6.31		10.48			19.2	
8-YRK001.64	2/19/1991	M	7	6.26		10.62			19.3	
8-YRK001.64	2/19/1991	M	9	6.28		10.67			19.3	
8-YRK001.64	2/19/1991	M	11	6.31		10.69			19.3	
8-YRK001.64	2/19/1991	M	13	6.35		10.81			19.3	
8-YRK001.64	2/19/1991	M	15	6.32		11.41			19.3	
8-YRK001.64	2/19/1991	B	16	6.34	8.01	11.39			19.4	
8-YRK001.64	3/5/1991	S	1	8.9	8.12	10.38			18.6	1.7
8-YRK001.64	3/5/1991	M	3	8.88		10.24			18.6	
8-YRK001.64	3/5/1991	M	5	8.89		10.18			18.6	
8-YRK001.64	3/5/1991	M	7	8.89		10.15			18.7	
8-YRK001.64	3/5/1991	M	9	8.87		10.15			18.7	
8-YRK001.64	3/5/1991	M	11	8.81		10.1			18.7	
8-YRK001.64	3/5/1991	M	13	8.53		9.88			18.9	
8-YRK001.64	3/5/1991	M	15	8.39		9.74			19	
8-YRK001.64	3/5/1991	M	17	8.1		9.53			19.2	
8-YRK001.64	3/5/1991	M	19	7.61		9.35			19.4	
8-YRK001.64	3/5/1991	B	20.99	7.52	7.99	9.31			19.6	
8-YRK001.64	3/25/1991	S	1	10.34	8.15	9.81	10.44		18.7	2.7
8-YRK001.64	3/25/1991	M	3	10.33		9.78			18.7	
8-YRK001.64	3/25/1991	M	5	10.15		9.67			18.8	
8-YRK001.64	3/25/1991	M	7	10.09		9.65			18.9	
8-YRK001.64	3/25/1991	M	9	10.01		9.45			19.2	
8-YRK001.64	3/25/1991	M	11	9.08		8.53			21.6	
8-YRK001.64	3/25/1991	M	13	8.45		8.14			24.8	
8-YRK001.64	3/25/1991	M	15	8.39		8.12			25.9	
8-YRK001.64	3/25/1991	M	17	8.39		8.15			25.9	
8-YRK001.64	3/25/1991	B	18	8.4	7.9	8.19	9.58		26	
8-YRK001.64	4/2/1991	S	1	11.83	8	9.35			17.4	1.5
8-YRK001.64	4/2/1991	M	3	12.05		9.22			17.6	
8-YRK001.64	4/2/1991	M	5	12.07		9.14			17.7	
8-YRK001.64	4/2/1991	M	7	12.09		9.12			17.9	
8-YRK001.64	4/2/1991	M	9	12.12		9.24			17.8	
8-YRK001.64	4/2/1991	M	11	12.09		9.32			18	
8-YRK001.64	4/2/1991	M	13	12.02		9.27			18.1	
8-YRK001.64	4/2/1991	M	15	11.89		9			18.3	
8-YRK001.64	4/2/1991	M	17	11.89		8.97			18.4	
8-YRK001.64	4/2/1991	M	19	11.76		8.57			18.5	
8-YRK001.64	4/2/1991	B	19.99	11.59	7.89	8.21			18.8	
8-YRK001.64	4/17/1991	S	1	14.7	7.68	8.2	8.97		17.4	1.8
8-YRK001.64	4/17/1991	M	3	14.6		8			17.5	
8-YRK001.64	4/17/1991	M	5	14.5		7.9			17.5	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	4/17/1991	M	7	14.5		7.75			17.6	
8-YRK001.64	4/17/1991	M	9	14.4		7.6			17.5	
8-YRK001.64	4/17/1991	M	11	14.4		7.6			17.6	
8-YRK001.64	4/17/1991	M	13	14.3		7.4			17.8	
8-YRK001.64	4/17/1991	M	15	13.9		6.94			18.1	
8-YRK001.64	4/17/1991	M	17	13.3		5.9			18.8	
8-YRK001.64	4/17/1991	B	18	12.92	7.33	5.9	6.3		19.9	
8-YRK001.64	5/1/1991	S	1	17.38	8.08	8.53	8.15		17.8	1.7
8-YRK001.64	5/1/1991	M	3	17.32		8.51			17.8	
8-YRK001.64	5/1/1991	M	5	17.32		8.55			17.8	
8-YRK001.64	5/1/1991	M	7	17.33		8.63			17.8	
8-YRK001.64	5/1/1991	M	9	17.16		8.64			17.8	
8-YRK001.64	5/1/1991	M	11	16.96		8.57			17.9	
8-YRK001.64	5/1/1991	B	13	16.5	8	8.1	8.2		18.1	
8-YRK001.64	5/15/1991	S	1	21.76	8.31	8.73			18	1.2
8-YRK001.64	5/15/1991	M	3	21.21		8.12			18.3	
8-YRK001.64	5/15/1991	M	5	20.78		7.5			18.3	
8-YRK001.64	5/15/1991	M	7	21.1		6.86			19.2	
8-YRK001.64	5/15/1991	M	9	19.08		6.52			20.3	
8-YRK001.64	5/15/1991	M	11	18.42		6.36			20.3	
8-YRK001.64	5/15/1991	M	13	17.87		6.11			21.2	
8-YRK001.64	5/15/1991	M	15	17.69		6			21.4	
8-YRK001.64	5/15/1991	M	17	17.5		5.94			21.7	
8-YRK001.64	5/15/1991	M	19	17.51		6.02			21.8	
8-YRK001.64	5/15/1991	B	19.99	17.6	7.82	5.92			21.8	
8-YRK001.64	6/12/1991	S	0.3	23.6	7.54		5.2			
8-YRK001.64	6/12/1991	M	1	23.6	7.54	5.15	5.03		20.3	0.8
8-YRK001.64	6/12/1991	M	3	23.6		5.11			20.2	
8-YRK001.64	6/12/1991	M	5	23.56		4.9			20.4	
8-YRK001.64	6/12/1991	M	7	23.55		4.77			20.4	
8-YRK001.64	6/12/1991	M	9	23.46		4.49			20.6	
8-YRK001.64	6/12/1991	M	11	23.28		4			21.1	
8-YRK001.64	6/12/1991	M	13	22.79		3.12			21.7	
8-YRK001.64	6/12/1991	M	15	22.14		2.38			22.9	
8-YRK001.64	6/12/1991	M	17	22.05		2.16			23.4	
8-YRK001.64	6/12/1991	B	19	21.89	7.27	2.12	2.29		23.9	
8-YRK001.64	6/26/1991	S	1	25.15		6.2	5.32		20.7	1.1
8-YRK001.64	6/26/1991	M	3	25.18		6.22			20.7	
8-YRK001.64	6/26/1991	M	5	25.19		6.2			20.7	
8-YRK001.64	6/26/1991	M	7	25.19		6.18			20.7	
8-YRK001.64	6/26/1991	M	9	25.24		5.69			20.7	
8-YRK001.64	6/26/1991	M	11	25.23		5.65			20.7	
8-YRK001.64	6/26/1991	M	13	25.2		5.51			20.7	
8-YRK001.64	6/26/1991	B	15	25.05	7.32	4.46	4.63		21.1	
8-YRK001.64	7/15/1991	S	1	28.09	7.57	5.42			22.9	0.9
8-YRK001.64	7/15/1991	M	3	28.08		5.48			22.9	
8-YRK001.64	7/15/1991	M	5	28.08		5.61			23	
8-YRK001.64	7/15/1991	M	7	28.08		5.66			22.9	
8-YRK001.64	7/15/1991	M	9	28.08		5.72			22.9	
8-YRK001.64	7/15/1991	M	11	28.09		5.79			22.9	
8-YRK001.64	7/15/1991	B	13	28.06	7.57	5.84			22.9	
8-YRK001.64	7/31/1991	S	1	26.35		4.8			24	1.2
8-YRK001.64	7/31/1991	M	3	26.36		4.75			24	
8-YRK001.64	7/31/1991	M	5	26.36		4.74			24	
8-YRK001.64	7/31/1991	M	7	26.6		4.1			24.3	
8-YRK001.64	7/31/1991	M	9	26.62		3.82			24.4	
8-YRK001.64	7/31/1991	M	11	26.64		3.65			24.6	
8-YRK001.64	7/31/1991	M	13	26.65		3.65			24.5	
8-YRK001.64	7/31/1991	B	15	26.65		3.35			24.7	
8-YRK001.64	8/12/1991	S	1	27.36	6.14	4.53	5.56		22	1
8-YRK001.64	8/12/1991	M	3	27.36		5.43			22	
8-YRK001.64	8/12/1991	M	5	27.34		4.52			22	
8-YRK001.64	8/12/1991	M	7	27.34		4.54			22	
8-YRK001.64	8/12/1991	M	9	27.33		4.55			22	
8-YRK001.64	8/12/1991	M	11	27.61		4.6			22	
8-YRK001.64	8/12/1991	M	13	27.3		4.61			22.1	
8-YRK001.64	8/12/1991	M	15	27.28		4.72			22.1	
8-YRK001.64	8/12/1991	M	17	27.26		4.64			22.1	
8-YRK001.64	8/12/1991	B	19	27.23	7.52	4.6	4.6		22	
8-YRK001.64	8/26/1991	S	1	26.57	7.59	5.17			22.8	1.4
8-YRK001.64	8/26/1991	M	3	26.58		5.21			22.8	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	8/26/1991	M	5	26.57		5.28			22.7	
8-YRK001.64	8/26/1991	M	7	26.57		5.37			22.7	
8-YRK001.64	8/26/1991	M	9	26.57		5.36			22.7	
8-YRK001.64	8/26/1991	B	11	26.5	7.59	5.47			22.8	
8-YRK001.64	9/11/1991	S	1	25.49	7.72	6.1	6.07		22.9	1
8-YRK001.64	9/11/1991	M	3	24.48		6.07			22.9	
8-YRK001.64	9/11/1991	M	5	25.48		6.08			22.9	
8-YRK001.64	9/11/1991	M	7	25.48		6.1			22.9	
8-YRK001.64	9/11/1991	M	9	25.48		6.12			22.8	
8-YRK001.64	9/11/1991	M	11	25.47		6.17			22.9	
8-YRK001.64	9/11/1991	M	13	25.47		6.26			22.9	
8-YRK001.64	9/11/1991	B	14	25.45	7.71	6.37	6.03		22.8	
8-YRK001.64	10/3/1991	S	1	22.08		7.46			18.7	1
8-YRK001.64	10/3/1991	M	3	22.03		7.33			18.8	
8-YRK001.64	10/3/1991	M	5	22.05		7.48			18.9	
8-YRK001.64	10/3/1991	M	7	22.02		6.87			19	
8-YRK001.64	10/3/1991	M	9	22.01		6.95			19.1	
8-YRK001.64	10/3/1991	M	11	22		7.05			19.2	
8-YRK001.64	10/3/1991	B	12	21.96	6.75	7.1			19.2	
8-YRK001.64	10/9/1991	S	1	20.34	7.71	6.34	6.65		23.5	1
8-YRK001.64	10/9/1991	M	3	20.39		6.3			23.7	
8-YRK001.64	10/9/1991	M	5	20.66		6.16			23.7	
8-YRK001.64	10/9/1991	M	7	20.63		6.23			23.7	
8-YRK001.64	10/9/1991	M	9	20.59		6.28			23.8	
8-YRK001.64	10/9/1991	M	11	20.52		6.29			23.9	
8-YRK001.64	10/9/1991	M	13	20.38		6.41			24	
8-YRK001.64	10/9/1991	M	15	20.27		6.41			24.1	
8-YRK001.64	10/9/1991	M	17	20.04		6.55			24.1	
8-YRK001.64	10/9/1991	M	19	19.9		6.57			24.3	
8-YRK001.64	10/9/1991	B	19.99	19.84	7.78	6.62	6.8		24.2	
8-YRK001.64	10/24/1991	S	1	17.22	7.74	7.6	7.74		23.5	1.6
8-YRK001.64	10/24/1991	M	3	17.26		7.56			23.5	
8-YRK001.64	10/24/1991	M	5	17.22		7.45			23.5	
8-YRK001.64	10/24/1991	M	7	17.13		7.39			23.5	
8-YRK001.64	10/24/1991	M	9	17.12		7.38			23.6	
8-YRK001.64	10/24/1991	M	11	16.9		7.36			23.6	
8-YRK001.64	10/24/1991	B	13	16.88	7.74	7.4	7.86		23.7	
8-YRK001.64	11/12/1991	S	1	11.16	7.69	8.78	8.97		22.9	1.3
8-YRK001.64	11/12/1991	M	3	11.17		8.79			23	
8-YRK001.64	11/12/1991	M	5	11.19		8.75			23	
8-YRK001.64	11/12/1991	M	7	11.2		8.76			23.1	
8-YRK001.64	11/12/1991	M	9	11.22		8.8			23	
8-YRK001.64	11/12/1991	M	11	11.24		8.87			23	
8-YRK001.64	11/12/1991	M	13	11.3		8.32			24.5	
8-YRK001.64	11/12/1991	B	15	12.01	7.62	8.17	7.54		27.1	
8-YRK001.64	12/12/1991	S	1	10.17	7.95	8.77	10.79		23.2	2.6
8-YRK001.64	12/12/1991	M	3	10.23		8.71			23.3	
8-YRK001.64	12/12/1991	M	5	10.25		8.74			23.2	
8-YRK001.64	12/12/1991	M	7	10.25		8.8			23.3	
8-YRK001.64	12/12/1991	M	9	10.15		8.65			23.7	
8-YRK001.64	12/12/1991	M	11	10.07		8.68			23.9	
8-YRK001.64	12/12/1991	M	13	10.04		8.75			23.9	
8-YRK001.64	12/12/1991	B	15	10.03	7.96	8.69			24	
8-YRK001.64	1/8/1992	S	1	6.81	8	11.02	11.43		22	1.4
8-YRK001.64	1/8/1992	M	3	6.88		11.13			22	
8-YRK001.64	1/8/1992	M	5	7.04		11.84			22.2	
8-YRK001.64	1/8/1992	M	7	7.38		10.83			22.8	
8-YRK001.64	1/8/1992	M	9	7.36		10.54			23.5	
8-YRK001.64	1/8/1992	M	11	7.33		10.15			24.4	
8-YRK001.64	1/8/1992	B	12	7.23		11.37	10.23		24.6	
8-YRK001.64	2/5/1992	S	1	4.83	8.05	11.31	10.8		22.9	1.9
8-YRK001.64	2/5/1992	M	3	4.84		11.3			22.9	
8-YRK001.64	2/5/1992	M	5	4.86		11.3			22.8	
8-YRK001.64	2/5/1992	M	7	4.87		11.34			22.9	
8-YRK001.64	2/5/1992	M	9	4.79		11.29			22.9	
8-YRK001.64	2/5/1992	M	11	4.67		11.18			23.4	
8-YRK001.64	2/5/1992	M	13	4.53		11.17			23.5	
8-YRK001.64	2/5/1992	M	15	4.53		11.11			23.7	
8-YRK001.64	2/5/1992	M	17	4.52		11.1			23.6	
8-YRK001.64	2/5/1992	M	19	4.5		11.17			23.7	
8-YRK001.64	2/5/1992	B	20.99	4.51	8	11.29	10.55		23.7	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/9/1992	S	1	9.79	7.02	10.24	9.66		22.1	3
8-YRK001.64	3/9/1992	M	3	9.66		10.25			22.2	
8-YRK001.64	3/9/1992	M	5	9.36		10.3			22.4	
8-YRK001.64	3/9/1992	M	7	8.91		10.51			22.8	
8-YRK001.64	3/9/1992	M	9	8.77		10.6			23	
8-YRK001.64	3/9/1992	M	11	8.72		10.74			22.8	
8-YRK001.64	3/9/1992	M	13	8.63		11.06			23.2	
8-YRK001.64	3/9/1992	M	15	8.51		10.72			23.2	
8-YRK001.64	3/9/1992	M	17	8.43		10.77			23.5	
8-YRK001.64	3/9/1992	M	19	8.4		10.69			23.5	
8-YRK001.64	3/9/1992	B	19.99	8.3	7.72	10.7	9.7		23.4	
8-YRK001.64	3/30/1992	S	1	9.4	8.09	9.78	9.54		17.9	2.1
8-YRK001.64	3/30/1992	M	3	9		9.67			19.7	
8-YRK001.64	3/30/1992	M	5	8.89		9.71			20.3	
8-YRK001.64	3/30/1992	M	7	8.82		9.73			20.7	
8-YRK001.64	3/30/1992	M	9	8.71		9.63			21.8	
8-YRK001.64	3/30/1992	M	11	8.61		10.15			21.9	
8-YRK001.64	3/30/1992	M	13	8.51		10.26			22	
8-YRK001.64	3/30/1992	M	15	8.45		10.28			22	
8-YRK001.64	3/30/1992	B	16	8.4	8.06	10.6	9.76		22.1	
8-YRK001.64	4/6/1992	S	1	8.88	8.04	9.04	9.43		20.4	2.4
8-YRK001.64	4/6/1992	M	3	8.93		9.02			20.4	
8-YRK001.64	4/6/1992	M	5	8.93		9.06			20.4	
8-YRK001.64	4/6/1992	M	7	8.93		9.06			20.5	
8-YRK001.64	4/6/1992	M	9	8.93		9.1			20.5	
8-YRK001.64	4/6/1992	M	11	8.92		9.14			20.5	
8-YRK001.64	4/6/1992	B	13	8.88	8.05	9.34	8.54		20.7	
8-YRK001.64	4/20/1992	S	0.3	14.3	7.97		9.1			
8-YRK001.64	4/20/1992	M	1	14.33	7.97	9.06	8.06		21	1.3
8-YRK001.64	4/20/1992	M	3	14.32		9.02			21	
8-YRK001.64	4/20/1992	M	5	14.29		8.93			20.9	
8-YRK001.64	4/20/1992	M	7	14.25		8.86			20.9	
8-YRK001.64	4/20/1992	M	9	14.16		8.71			21	
8-YRK001.64	4/20/1992	M	11	14		8.51			21.1	
8-YRK001.64	4/20/1992	B	12	14	7.91	8.61	8.39		21	
8-YRK001.64	5/5/1992	S	0.3	15.2			6.9			
8-YRK001.64	5/5/1992	S	1	16.46	7.73	8.02	7.72		20.3	1
8-YRK001.64	5/5/1992	M	3	16.54		7.7			20.4	
8-YRK001.64	5/5/1992	M	5	16.39		7.53			20.4	
8-YRK001.64	5/5/1992	M	7	16.3		7.52			20.5	
8-YRK001.64	5/5/1992	M	9	16.29		7.49			20.6	
8-YRK001.64	5/5/1992	M	11	16.28		7.56			20.5	
8-YRK001.64	5/5/1992	M	13	16.26		7.57			20.6	
8-YRK001.64	5/5/1992	M	15	16.16		7.47			20.8	
8-YRK001.64	5/5/1992	M	17	15.41		7.05			21.2	
8-YRK001.64	5/5/1992	B	19	15.26		6.98	5.1		21.7	
8-YRK001.64	5/21/1992	S	1	18.4	7.82	7.62	7.86		19.7	1.3
8-YRK001.64	5/21/1992	M	3	18.43		7.54			19.6	
8-YRK001.64	5/21/1992	M	5	18.44		7.5			19.7	
8-YRK001.64	5/21/1992	M	7	18.44		7.84			19.7	
8-YRK001.64	5/21/1992	M	9	18.48		7.9			19.8	
8-YRK001.64	5/21/1992	M	11	18.51		8.03			19.8	
8-YRK001.64	5/21/1992	B	13	18.38	7.87	7.97	8.22		19.9	
8-YRK001.64	8/31/1992	S	1	25.39	7.31	5.32	4.7		20.5	1.2
8-YRK001.64	8/31/1992	M	3	25.13		5.16			20.6	
8-YRK001.64	8/31/1992	M	5	25.54		4.84			20.6	
8-YRK001.64	8/31/1992	M	7	25.56		4.73			20.8	
8-YRK001.64	8/31/1992	M	9	25.49		4.31			20.9	
8-YRK001.64	8/31/1992	M	11	25.33		3.13			21.4	
8-YRK001.64	8/31/1992	M	13	25.32		4.17			21.5	
8-YRK001.64	8/31/1992	M	15	24.25		4.38			21.5	
8-YRK001.64	8/31/1992	B	17	25.19	7.29	4.35	3.8		21.6	
8-YRK001.64	9/14/1992	S	1	24.79	7.88	6.15	5.96		20.3	1.2
8-YRK001.64	9/14/1992	M	3	24.82		6.08			20.4	
8-YRK001.64	9/14/1992	M	5	24.9		5.87			20.4	
8-YRK001.64	9/14/1992	M	7	25.07		5.02			20.6	
8-YRK001.64	9/14/1992	M	9	25.19		3.94			21.1	
8-YRK001.64	9/14/1992	M	11	25.22		3.45			21.4	
8-YRK001.64	9/14/1992	M	13	25.13		3.21			22	
8-YRK001.64	9/14/1992	M	15	24.88		2.95			22.6	
8-YRK001.64	9/14/1992	B	16	24.87	7.59	2.9	2.81		22.7	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/1/1992	S	1	20.71	7.57	6.67	6.9		20.7	1.5
8-YRK001.64	10/1/1992	M	3	20.73		6.62			20.7	
8-YRK001.64	10/1/1992	M	5	20.74		6.62			20.7	
8-YRK001.64	10/1/1992	M	7	20.74		6.57			20.7	
8-YRK001.64	10/1/1992	M	9	20.72		6.57			20.7	
8-YRK001.64	10/1/1992	M	11	20.72		6.6			20.7	
8-YRK001.64	10/1/1992	B	13	20.78	7.57	6.63	6.67		20.9	
8-YRK001.64	10/14/1992	S	1	18.48	7.68	7.02	7.78		20.8	2
8-YRK001.64	10/14/1992	M	3	18.51		7.01			20.9	
8-YRK001.64	10/14/1992	M	5	18.72		6.64			21.2	
8-YRK001.64	10/14/1992	M	7	18.52		6.29			21.8	
8-YRK001.64	10/14/1992	M	9	18.36		6.17			22.8	
8-YRK001.64	10/14/1992	M	11	18.33		6.02			23.2	
8-YRK001.64	10/14/1992	B	13	18.3	7.63	5.54	5.96		24.4	
8-YRK001.64	10/28/1992	S	1	15.16	7.88	7.8	7.99		22.2	2
8-YRK001.64	10/28/1992	M	3	15.17		7.79			22.2	
8-YRK001.64	10/28/1992	M	5	15.18		7.77			22.1	
8-YRK001.64	10/28/1992	M	7	15.19		7.74			22.1	
8-YRK001.64	10/28/1992	M	9	15.2		7.97			22.1	
8-YRK001.64	10/28/1992	M	11	15.2		7.94			22.3	
8-YRK001.64	10/28/1992	B	13	15.23	7.83	7.92	8.09		22.5	
8-YRK001.64	11/16/1992	S	1	12.53	7.64	8.43			21.1	2.8
8-YRK001.64	11/16/1992	M	3	12.56		8.52			21	
8-YRK001.64	11/16/1992	M	5	12.56		8.49			21.1	
8-YRK001.64	11/16/1992	M	7	12.56		8.51			21.1	
8-YRK001.64	11/16/1992	M	9	12.6		8.53			21.1	
8-YRK001.64	11/16/1992	M	11	12.64		8.57			21.1	
8-YRK001.64	11/16/1992	M	13	12.71		8.55			21.3	
8-YRK001.64	11/16/1992	B	14	12.69	7.73	8.79			21.4	
8-YRK001.64	12/17/1992	S	1	7.57	7.83	9.91			20.5	1.6
8-YRK001.64	12/17/1992	M	3	7.41		9.76			20.8	
8-YRK001.64	12/17/1992	M	5	7.39		9.65			21.6	
8-YRK001.64	12/17/1992	M	7	7.5		9.59			21.9	
8-YRK001.64	12/17/1992	M	9	7.39		9.5			22	
8-YRK001.64	12/17/1992	M	11	7.44		9.47			22.1	
8-YRK001.64	12/17/1992	M	13	7.45		9.45			22.5	
8-YRK001.64	12/17/1992	B	15	7.47	7.55	9.48			22.5	
8-YRK001.64	1/13/1993	S	1	6.99		10.72	11.26		17.4	2.6
8-YRK001.64	1/13/1993	M	3	7		10.66			17.5	
8-YRK001.64	1/13/1993	M	5	7.01		10.74			17.7	
8-YRK001.64	1/13/1993	M	7	7.03		10.75			17.8	
8-YRK001.64	1/13/1993	M	9	7.02		10.74			18	
8-YRK001.64	1/13/1993	M	11	7		10.88			18.2	
8-YRK001.64	1/13/1993	B	12	6.95		11.62	10.68		18.7	
8-YRK001.64	2/10/1993	S	1	5	8.19	11.54	11.78		19.9	1.1
8-YRK001.64	2/10/1993	M	3	5		11.52			19.9	
8-YRK001.64	2/10/1993	M	5	5.02		11.43			20	
8-YRK001.64	2/10/1993	M	7	5.03		11.37			20	
8-YRK001.64	2/10/1993	M	9	5.03		11.41			20	
8-YRK001.64	2/10/1993	M	11	5.03		11.46			20	
8-YRK001.64	2/10/1993	M	13	5.03		11.5			19.9	
8-YRK001.64	2/10/1993	B	14	5.03	8.05	11.71	11.58		20	
8-YRK001.64	3/11/1993	S	1	6.88	8.16	11.05			16.8	1
8-YRK001.64	3/11/1993	M	3	6.92		10.93			17.3	
8-YRK001.64	3/11/1993	M	5	7.04		10.88			17.7	
8-YRK001.64	3/11/1993	M	7	7.1		10.8			18.1	
8-YRK001.64	3/11/1993	M	9	6.97		10.64			18.5	
8-YRK001.64	3/11/1993	M	11	6.92		10.66			18.7	
8-YRK001.64	3/11/1993	M	13	6.75		10.51			19.2	
8-YRK001.64	3/11/1993	M	15	6.75		10.58			19.1	
8-YRK001.64	3/11/1993	M	17	6.75		10.6			19.1	
8-YRK001.64	3/11/1993	B	19	6.76	8.75	10.6			19.3	
8-YRK001.64	3/25/1993	S	1	7.81	8.29	12.48			12.1	0.9
8-YRK001.64	3/25/1993	M	3	7.33		11.82			14	
8-YRK001.64	3/25/1993	M	5	7.29		11.79			14.3	
8-YRK001.64	3/25/1993	M	7	7.22		11.75			14.5	
8-YRK001.64	3/25/1993	B	9	7	7.89	11.38			15.1	
8-YRK001.64	4/14/1993	S	1	11.33	8.08	9.83	10.43		12.3	1
8-YRK001.64	4/14/1993	M	3	11.17		10.18			13.3	
8-YRK001.64	4/14/1993	M	5	10.89		10.83			14	
8-YRK001.64	4/14/1993	M	7	10.68		10.91			14.3	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	4/14/1993	M	9	10.23		10.97			15.2	
8-YRK001.64	4/14/1993	M	11	10.04		10.68			15.7	
8-YRK001.64	4/14/1993	M	13	9.49		9.81			16.8	
8-YRK001.64	4/14/1993	M	15	9.15		9.42			17.7	
8-YRK001.64	4/14/1993	B	17	9.76	8.05	9.39	9.82		18.1	
8-YRK001.64	4/29/1993	S	1	13.38	7.89	9	9.69		13.6	2.1
8-YRK001.64	4/29/1993	M	3	13.35		8.92			13.6	
8-YRK001.64	4/29/1993	M	5	13.31		8.2			13.6	
8-YRK001.64	4/29/1993	M	7	13.22		6.97			14.7	
8-YRK001.64	4/29/1993	M	9	13.06		6.75			15	
8-YRK001.64	4/29/1993	B	11	12.01	7.51	5.07	5.49		17.2	
8-YRK001.64	5/10/1993	S	1	18.68	8.04	8.02	7.89		13.2	0.7
8-YRK001.64	5/10/1993	M	3	18.69		8.09			13.3	
8-YRK001.64	5/10/1993	M	5	18.65		8.16			13.4	
8-YRK001.64	5/10/1993	M	7	18.53		7.98			13.4	
8-YRK001.64	5/10/1993	M	9	17.98		6.38			13.5	
8-YRK001.64	5/10/1993	M	11	17.92		6.38			13.6	
8-YRK001.64	5/10/1993	M	13	17.89		6.34			13.6	
8-YRK001.64	5/10/1993	M	15	17.86		6.3			13.7	
8-YRK001.64	5/10/1993	M	17	17.84		6.26			13.8	
8-YRK001.64	5/10/1993	M	19	17.69		5.87			13.7	
8-YRK001.64	5/10/1993	M	20.99	17.67		5.79			13.8	
8-YRK001.64	5/10/1993	B	21.99	17.62	7.81	5.71	5.39		13.8	
8-YRK001.64	5/25/1993	S	1	18.98	7.66	7.04	6.83		14.3	1.3
8-YRK001.64	5/25/1993	M	3	18.98		6.98			14.4	
8-YRK001.64	5/25/1993	M	5	18.9		6.79			14.4	
8-YRK001.64	5/25/1993	M	7	17.49		4.19			17.1	
8-YRK001.64	5/25/1993	M	9	16.21		2.34			18.7	
8-YRK001.64	5/25/1993	B	11	15.33	7.27	1.83	2.14		21.2	
8-YRK001.64	6/8/1993	S	1	21.22	7.51	5.94			16.1	0.8
8-YRK001.64	6/8/1993	M	3	21.21		6.11			16.3	
8-YRK001.64	6/8/1993	M	5	21.21		6.2			16.4	
8-YRK001.64	6/8/1993	M	7	21.12		6.37			16.5	
8-YRK001.64	6/8/1993	M	9	20.6		5.58			16.9	
8-YRK001.64	6/8/1993	M	11	19.57		4.47			18	
8-YRK001.64	6/8/1993	M	13	19.46		4.41			18.2	
8-YRK001.64	6/8/1993	B	14	19.49	7.47	4.62			18.2	
8-YRK001.64	6/23/1993	S	1	23.23	7.5	5.24			18.7	1.3
8-YRK001.64	6/23/1993	M	3	23.22		5.14			18.7	
8-YRK001.64	6/23/1993	M	5	23.16		5.05			18.7	
8-YRK001.64	6/23/1993	M	7	22.52		4.97			20.1	
8-YRK001.64	6/23/1993	M	9	21.76		2.78			20.8	
8-YRK001.64	6/23/1993	B	10	21.75	7.46	2.81			20.8	
8-YRK001.64	7/8/1993	S	1	27.33	7.52	5.52	6.03		18.9	1.5
8-YRK001.64	7/8/1993	M	3	27.31		5.46			18.9	
8-YRK001.64	7/8/1993	M	5	26.46		3.51			19.7	
8-YRK001.64	7/8/1993	M	7	25.83		2.85			20.2	
8-YRK001.64	7/8/1993	M	9	23.82		1.56			21.4	
8-YRK001.64	7/8/1993	M	11	23.43		1.57			21.7	
8-YRK001.64	7/8/1993	M	13	27.95		1.54			22	
8-YRK001.64	7/8/1993	B	15	22.76	7.29	1.84	2.07		22.5	
8-YRK001.64	7/22/1993	S	1	26.73	7.83	6.96	7.49		20	1.6
8-YRK001.64	7/22/1993	M	3	26.82		6.5			20.5	
8-YRK001.64	7/22/1993	M	5	26.64		6.18			21	
8-YRK001.64	7/22/1993	M	7	26.19		5.41			21.5	
8-YRK001.64	7/22/1993	M	9	25.76		4.73			21.8	
8-YRK001.64	7/22/1993	M	11	25.09		4.1			22.3	
8-YRK001.64	7/22/1993	M	13	24.04		3.07			23.2	
8-YRK001.64	7/22/1993	B	14	23.42	7.41	2.63	3.63		23.8	
8-YRK001.64	8/5/1993	S	1	26.67		5.13	6.36		22	1.3
8-YRK001.64	8/5/1993	M	3	26.7		4.56			22.2	
8-YRK001.64	8/5/1993	M	5	26.21		3.78			22.5	
8-YRK001.64	8/5/1993	M	7	25.95		3.57			22.7	
8-YRK001.64	8/5/1993	M	9	25.17		3.16			23.6	
8-YRK001.64	8/5/1993	M	11	24.76		3.06			24.3	
8-YRK001.64	8/5/1993	M	13	24.46		2.82			24.8	
8-YRK001.64	8/5/1993	M	15	24.42		2.9			25	
8-YRK001.64	8/5/1993	M	17	24.4		2.88			25	
8-YRK001.64	8/5/1993	M	19	24.38		2.96			24.9	
8-YRK001.64	8/5/1993	B	20.99	24.37		3.03	4.51		25	
8-YRK001.64	8/19/1993	S	1	26.36	7.87	6.98	6.73		21.7	1.7

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	8/19/1993	M	3	26.43		6.12			21.7	
8-YRK001.64	8/19/1993	M	5	26.51		5.75			22	
8-YRK001.64	8/19/1993	M	7	26.39		5.21			22.3	
8-YRK001.64	8/19/1993	M	9	26.32		5.09			22.5	
8-YRK001.64	8/19/1993	M	11	26.03		4.64			22.6	
8-YRK001.64	8/19/1993	M	13	25.47		3.75			23.2	
8-YRK001.64	8/19/1993	M	15	24.87		3.31			23.7	
8-YRK001.64	8/19/1993	M	17	24.37		2.88			24.1	
8-YRK001.64	8/19/1993	M	19	23.6		2.34			24.8	
8-YRK001.64	8/19/1993	B	19.99	23.41	7.67	2.31	2.87		25	
8-YRK001.64	9/7/1993	S	1	26.74	7.73	5.89			22.8	1.9
8-YRK001.64	9/7/1993	M	3	26.75		5.82			22.8	
8-YRK001.64	9/7/1993	M	5	27.17		4.52			23.3	
8-YRK001.64	9/7/1993	M	7	26.9		4.72			23.3	
8-YRK001.64	9/7/1993	M	9	26.75		3.6			23.9	
8-YRK001.64	9/7/1993	M	11	26.11		2.88			24.6	
8-YRK001.64	9/7/1993	M	13	25.71		2.55			25.1	
8-YRK001.64	9/7/1993	M	15	25.3		2.23			26	
8-YRK001.64	9/7/1993	B	17	25.17	7.47	2.07			26	
8-YRK001.64	9/22/1993	S	1	24.75	7.85	5.47	5.77		23	1.4
8-YRK001.64	9/22/1993	M	3	24.72		5.44			23	
8-YRK001.64	9/22/1993	M	5	24.73		5.43			23	
8-YRK001.64	9/22/1993	M	7	24.74		5.32			23.1	
8-YRK001.64	9/22/1993	M	9	24.66		5.38			23.1	
8-YRK001.64	9/22/1993	M	11	24.56		5.31			23.2	
8-YRK001.64	9/22/1993	M	13	24.44		5.38			23.2	
8-YRK001.64	9/22/1993	M	15	24.29		5.41			23.3	
8-YRK001.64	9/22/1993	B	17	24.11	7.93	5.61	5.49		23.2	
8-YRK001.64	10/6/1993	S	1	20.25	7.83	7.16			24.4	1.2
8-YRK001.64	10/6/1993	M	3	20.27		7.17			24.3	
8-YRK001.64	10/6/1993	M	5	20.27		7.19			24.3	
8-YRK001.64	10/6/1993	M	7	20.28		7.18			24.3	
8-YRK001.64	10/6/1993	M	9	20.33		7.18			24.4	
8-YRK001.64	10/6/1993	M	11	20.36		7.21			24.4	
8-YRK001.64	10/6/1993	M	13	20.45		7.07			24.6	
8-YRK001.64	10/6/1993	B	15	20.46	7.81	7.08			24.6	
8-YRK001.64	12/6/1993	S	1	11.16	7.81	8.75	9.18		22	1.8
8-YRK001.64	12/6/1993	M	3	11.35		8.7			22.2	
8-YRK001.64	12/6/1993	M	5	11.45		8.67			22.5	
8-YRK001.64	12/6/1993	M	7	11.51		8.69			22.6	
8-YRK001.64	12/6/1993	M	9	11.39		8.74			22.9	
8-YRK001.64	12/6/1993	M	11	11.38		8.77			23	
8-YRK001.64	12/6/1993	M	13	11.45		8.69			23.4	
8-YRK001.64	12/6/1993	B	14	11.46	7.78	8.79	9.25		23.5	
8-YRK001.64	1/13/1994	S	1	4.57	7.95	12.01	10.04		19.4	1.9
8-YRK001.64	1/13/1994	M	3	4.47		11.97			19.5	
8-YRK001.64	1/13/1994	M	5	4.57		12			19.7	
8-YRK001.64	1/13/1994	M	7	4.55		12			19.8	
8-YRK001.64	1/13/1994	M	9	4.4		11.95			20	
8-YRK001.64	1/13/1994	M	11	4.18		12.04			20	
8-YRK001.64	1/13/1994	M	13	4.18		12.05			20	
8-YRK001.64	1/13/1994	M	15	4.16		12.08			20	
8-YRK001.64	1/13/1994	M	17	4.18		12.08			20	
8-YRK001.64	1/13/1994	M	19	4.09		12.19			20	
8-YRK001.64	1/13/1994	B	20.99	4.08	7.91	12.19	9.21		20	
8-YRK001.64	2/15/1994	S	1	2.27	7.85	13	13.4		17.7	1.6
8-YRK001.64	2/15/1994	M	3	2.73		12.68			18.7	
8-YRK001.64	2/15/1994	M	5	2.7		12.5			19.3	
8-YRK001.64	2/15/1994	M	7	2.6		12.38			19.6	
8-YRK001.64	2/15/1994	M	9	2.53		12.24			19.8	
8-YRK001.64	2/15/1994	M	11	2.38		11.85			20.4	
8-YRK001.64	2/15/1994	M	13	2.09		11.65			21.4	
8-YRK001.64	2/15/1994	M	15	2.01		11.25			22.8	
8-YRK001.64	2/15/1994	M	17	2.06		11.18			24	
8-YRK001.64	2/15/1994	B	19	2.09	7.81	11.17	10.97		24.2	
8-YRK001.64	3/30/1994	S	1	10.38	7.99	10.44	10.58		15.4	0.9
8-YRK001.64	3/30/1994	M	3	10.39		10.26			15.5	
8-YRK001.64	3/30/1994	M	5	10.4		10.19			15.5	
8-YRK001.64	3/30/1994	M	7	10.42		10.15			15.7	
8-YRK001.64	3/30/1994	M	9	10.42		10.15			15.9	
8-YRK001.64	3/30/1994	M	11	10.44		10.15			16	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/30/1994	M	13	10.42		10.16			16.1	
8-YRK001.64	3/30/1994	M	15	10.39		10.16			16.1	
8-YRK001.64	3/30/1994	B	16	10.39	7.95	10.18	10.88		16.2	
8-YRK001.64	4/26/1994	S	1	15.6	8.02	8.72	7.7		14.3	1.2
8-YRK001.64	4/26/1994	M	3	15.61		8.64			14.3	
8-YRK001.64	4/26/1994	M	5	15.28		8.42			14.6	
8-YRK001.64	4/26/1994	M	7	15.23		7.93			14.7	
8-YRK001.64	4/26/1994	M	9	14.75		7.05			15.2	
8-YRK001.64	4/26/1994	M	11	14.05		6.05			16.5	
8-YRK001.64	4/26/1994	B	13	13.58	7.43	5.43	4.7		17.3	
8-YRK001.64	5/24/1994	S	1	17.56	7.95	9.28	9.46		14.6	2.5
8-YRK001.64	5/24/1994	M	3	17.81		9.09			15.1	
8-YRK001.64	5/24/1994	M	5	18.01		8.44			15.5	
8-YRK001.64	5/24/1994	M	7	17.68		7.81			15.8	
8-YRK001.64	5/24/1994	M	9	17.54		7.75			15.8	
8-YRK001.64	5/24/1994	M	11	17.32		7.65			15.9	
8-YRK001.64	5/24/1994	M	13	16.5		6.92			16.5	
8-YRK001.64	5/24/1994	M	15	16.6		3.36			16.9	
8-YRK001.64	5/24/1994	M	17	15.76		4.28			19.5	
8-YRK001.64	5/24/1994	B	19	15.71	7.31	4.17	4.41		19.7	
8-YRK001.64	6/23/1994	S	1	27.26	8.12	7.43	8.75		16.7	1.3
8-YRK001.64	6/23/1994	M	3	27.25		7.02			17	
8-YRK001.64	6/23/1994	M	5	26.96		6.32			17.3	
8-YRK001.64	6/23/1994	M	7	26.46		5.34			17.6	
8-YRK001.64	6/23/1994	M	9	26.11		4.76			17.9	
8-YRK001.64	6/23/1994	M	11	25.5		4.1			18.2	
8-YRK001.64	6/23/1994	M	13	24.67		3.33			18.8	
8-YRK001.64	6/23/1994	M	15	23.52		2.54			19.7	
8-YRK001.64	6/23/1994	B	16	23.48	7.43	2.51	3.31		19.8	
8-YRK001.64	7/21/1994	S	1	27.91	7.84	5.8			18.7	1.1
8-YRK001.64	7/21/1994	M	3	27.97		5.57			18.8	
8-YRK001.64	7/21/1994	M	5	27.82		5.06			19.3	
8-YRK001.64	7/21/1994	M	7	27.74		4.62			19.6	
8-YRK001.64	7/21/1994	M	9	26.93		3.34			20.6	
8-YRK001.64	7/21/1994	M	11	25.77		2.64			21.6	
8-YRK001.64	7/21/1994	B	12	25.72	7	2.65			21.7	
8-YRK001.64	8/23/1994	S	1	25.28	7.9	6.26			21.1	1.9
8-YRK001.64	8/23/1994	M	3	25.29		6.2			21	
8-YRK001.64	8/23/1994	M	5	25.29		6.18			21	
8-YRK001.64	8/23/1994	M	7	25.31		6.08			21.1	
8-YRK001.64	8/23/1994	M	9	25.35		5.09			21.1	
8-YRK001.64	8/23/1994	M	11	25.17		5.26			21.7	
8-YRK001.64	8/23/1994	B	13	24.84	7.77	4.83			22.4	
8-YRK001.64	9/27/1994	S	14	22.22	7.53	2.93			25.8	
8-YRK001.64	9/27/1994	S	1	22.82	7.94	7.21			20.2	1.8
8-YRK001.64	9/27/1994	M	3	22.9		7.17			20.2	
8-YRK001.64	9/27/1994	M	5	23.16		6.73			20.8	
8-YRK001.64	9/27/1994	M	7	23.2		6.13			21	
8-YRK001.64	9/27/1994	M	9	23.11		5.78			21.2	
8-YRK001.64	9/27/1994	M	11	22.68		4.58			25.6	
8-YRK001.64	9/27/1994	B	13	22.34		3.4			24.5	
8-YRK001.64	10/20/1994	S	14	17.09	7.75	6.01			26.1	
8-YRK001.64	10/20/1994	S	1	17.21	7.83	7.6			21.6	1.5
8-YRK001.64	10/20/1994	M	3	17.23		7.56			21.6	
8-YRK001.64	10/20/1994	M	5	17.29		7.52			21.7	
8-YRK001.64	10/20/1994	M	7	17.3		7.52			21.7	
8-YRK001.64	10/20/1994	M	9	17.23		7.15			22.3	
8-YRK001.64	10/20/1994	M	11	17.1		6.45			24.4	
8-YRK001.64	10/20/1994	B	13	17.09		6			26	
8-YRK001.64	11/29/1994	S	21.99	12.36	7.66	7.72			27.7	
8-YRK001.64	11/29/1994	S	1	12.11	7.67	8.55			21.7	1.5
8-YRK001.64	11/29/1994	M	3	12.1		8.57			21.6	
8-YRK001.64	11/29/1994	M	5	12.15		8.59			21.7	
8-YRK001.64	11/29/1994	M	7	12.2		8.64			21.9	
8-YRK001.64	11/29/1994	M	9	12.13		8.54			22.3	
8-YRK001.64	11/29/1994	M	11	12.15		8.34			23.7	
8-YRK001.64	11/29/1994	M	13	12.22		8			25.5	
8-YRK001.64	11/29/1994	M	15	12.3		7.79			26.7	
8-YRK001.64	11/29/1994	M	17	12.34		7.71			27.4	
8-YRK001.64	11/29/1994	M	19	12.36		7.73			27.6	
8-YRK001.64	11/29/1994	B	20.99	12.36		7.72			27.7	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	12/13/1994	S	18	10.48	7.8	8.42			23.3	
8-YRK001.64	12/13/1994	S	1	10.07	7.79	8.85			21.1	1.8
8-YRK001.64	12/13/1994	M	3	10.09		8.86			21	
8-YRK001.64	12/13/1994	M	5	10.32		8.79			21.6	
8-YRK001.64	12/13/1994	M	7	9.93		8.91			22.1	
8-YRK001.64	12/13/1994	M	9	9.77		8.95			22.1	
8-YRK001.64	12/13/1994	M	11	9.96		8.73			22.6	
8-YRK001.64	12/13/1994	M	13	10.11		8.64			22.8	
8-YRK001.64	12/13/1994	M	15	10.35		8.51			23.1	
8-YRK001.64	12/13/1994	B	17	10.38		8.48			23.1	
8-YRK001.64	1/12/1995	S	20.99	6.8	7.59	12.3			26.2	
8-YRK001.64	1/12/1995	S	1	6.41	7.74	14.74			21.3	2.9
8-YRK001.64	1/12/1995	M	3	6.45		14.69			21.5	
8-YRK001.64	1/12/1995	M	5	6.4		14.46			21.8	
8-YRK001.64	1/12/1995	M	7	6.28		14.61			21.9	
8-YRK001.64	1/12/1995	M	9	6.01		14.5			22.1	
8-YRK001.64	1/12/1995	M	11	6.2		13.69			23.2	
8-YRK001.64	1/12/1995	M	13	6.52		12.42			24.7	
8-YRK001.64	1/12/1995	M	15	6.76		12.09			25.8	
8-YRK001.64	1/12/1995	M	17	6.79		12.11			26	
8-YRK001.64	1/12/1995	B	19	6.79		12.16			26.1	
8-YRK001.64	2/13/1995	S	19	3.49	7.73	10.3			24.8	
8-YRK001.64	2/13/1995	S	1	2.73	7.89	11.91			20.1	2
8-YRK001.64	2/13/1995	M	3	2.85		11.84			20.2	
8-YRK001.64	2/13/1995	M	5	3.18		11.68			20.6	
8-YRK001.64	2/13/1995	M	7	3.09		11.69			20.8	
8-YRK001.64	2/13/1995	M	9	2.98		11.01			22.1	
8-YRK001.64	2/13/1995	M	11	3.22		10.46			23.4	
8-YRK001.64	2/13/1995	M	13	3.38		10.26			24.3	
8-YRK001.64	2/13/1995	M	15	3.4		10.28			24.4	
8-YRK001.64	2/13/1995	B	17	3.46		10.24			24.6	
8-YRK001.64	3/7/1995	S	13	5.43	7.11	10.11			26.1	
8-YRK001.64	3/7/1995	S	1	7.02	7.93	10.78			20.1	2
8-YRK001.64	3/7/1995	M	3	6.78		10.78			20.2	
8-YRK001.64	3/7/1995	M	5	6.63		10.7			20.4	
8-YRK001.64	3/7/1995	M	7	6.41		10.79			20.7	
8-YRK001.64	3/7/1995	M	9	6.25		10.88			20.8	
8-YRK001.64	3/7/1995	B	11	6.04		10.9			21.2	
8-YRK001.64	4/20/1995	S	1							0.8
8-YRK001.64	4/20/1995	B	19	14.21	7.6	7.52			21.1	
8-YRK001.64	4/20/1995	S	1	14.98	7.44	6.9			20.5	
8-YRK001.64	4/20/1995	M	3	14.94		6.94			20.6	
8-YRK001.64	4/20/1995	M	5	14.85		7.15			20.8	
8-YRK001.64	4/20/1995	M	7	14.82		7.28			20.9	
8-YRK001.64	4/20/1995	M	9	14.37		7.38			21	
8-YRK001.64	4/20/1995	M	11	14.33		7.4			21.1	
8-YRK001.64	4/20/1995	M	13	14.25		7.4			21.1	
8-YRK001.64	4/20/1995	M	15	14.22		7.42			21.1	
8-YRK001.64	4/20/1995	M	17	14.22		7.47			21.1	
8-YRK001.64	5/9/1995	S	16	14.29	7.37	5.71			26	
8-YRK001.64	5/9/1995	S	1	16.44	7.77	9.18			18.1	1.8
8-YRK001.64	5/9/1995	M	3	16.67		9.14			18.4	
8-YRK001.64	5/9/1995	M	5	16.86		8.84			19.2	
8-YRK001.64	5/9/1995	M	7	16.54		8.41			19.8	
8-YRK001.64	5/9/1995	M	9	15.76		6.83			20.7	
8-YRK001.64	5/9/1995	M	11	14.62		5.83			24.3	
8-YRK001.64	5/9/1995	M	13	14.37		5.61			25.6	
8-YRK001.64	5/9/1995	B	15	14.31		5.62			25.7	
8-YRK001.64	6/22/1995	S	15	23.45	7.47	4.03			23.1	
8-YRK001.64	6/22/1995	S	1	24.9	7.71	6.95			20.1	1.6
8-YRK001.64	6/22/1995	M	3	24.92		6.53			20.2	
8-YRK001.64	6/22/1995	M	5	24.85		5.92			20.4	
8-YRK001.64	6/22/1995	M	7	24.86		5.75			20.6	
8-YRK001.64	6/22/1995	M	9	24.84		5.62			21	
8-YRK001.64	6/22/1995	M	11	24.4		5.13			21.4	
8-YRK001.64	6/22/1995	B	13	24.03		4.69			22	
8-YRK001.64	7/6/1995	S	19.99	25.18	7.3	2.18			22.8	
8-YRK001.64	7/6/1995	S	1	26.54	7.76	6.96			19.5	1.2
8-YRK001.64	7/6/1995	M	3	26.58		6.88			19.5	
8-YRK001.64	7/6/1995	M	5	26.6		6.19			19.9	
8-YRK001.64	7/6/1995	M	7	26.53		5.92			20.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/6/1995	M	9	26.19		4.76			20.3	
8-YRK001.64	7/6/1995	M	11	26.07		4.02			20.3	
8-YRK001.64	7/6/1995	M	13	27.7		3.15			21.2	
8-YRK001.64	7/6/1995	M	15	25.51		2.72			21.7	
8-YRK001.64	7/6/1995	M	17	25.26		2.25			22.5	
8-YRK001.64	7/6/1995	B	19	25.19		2.15			22.7	
8-YRK001.64	8/15/1995	S	18	27.7	7.78	7.08			23.6	
8-YRK001.64	8/15/1995	S	1	27.83	7.93	8.36			23.8	1.4
8-YRK001.64	8/15/1995	M	3	27.84		8.42			23.8	
8-YRK001.64	8/15/1995	M	5	27.89		8.58			23.7	
8-YRK001.64	8/15/1995	M	7	27.91		8.49			23.6	
8-YRK001.64	8/15/1995	M	9	27.87		8.01			23.6	
8-YRK001.64	8/15/1995	M	11	27.73		7			23.6	
8-YRK001.64	8/15/1995	M	13	27.74		6.99			23.5	
8-YRK001.64	8/15/1995	M	15	27.73		6.98			23.5	
8-YRK001.64	8/15/1995	B	17	27.7		7			23.5	
8-YRK001.64	9/5/1995	S	19	25.61	7.81	2.74			23.8	
8-YRK001.64	9/5/1995	S	1	26.11	8.11	6.99			23.3	1.7
8-YRK001.64	9/5/1995	M	3	26.13		6.54			23.3	
8-YRK001.64	9/5/1995	M	5	25.98		5.92			23.3	
8-YRK001.64	9/5/1995	M	7	25.95		5.8			23.1	
8-YRK001.64	9/5/1995	M	9	25.7		5.72			23	
8-YRK001.64	9/5/1995	M	11	26.63		5.42			23.1	
8-YRK001.64	9/5/1995	M	13	25.56		4.55			23.4	
8-YRK001.64	9/5/1995	M	15	25.58		3.52			23.6	
8-YRK001.64	9/5/1995	B	17	25.58		3.41			23.7	
8-YRK001.64	10/10/1995	S	19.99	22.12	7.74	5.54			25.9	
8-YRK001.64	10/10/1995	S	1	22.1	7.74	6.24			24.3	1.4
8-YRK001.64	10/10/1995	M	3	22.09		6.23			24.2	
8-YRK001.64	10/10/1995	M	5	22.09		6.12			24.2	
8-YRK001.64	10/10/1995	M	7	22.36		5.3			24.3	
8-YRK001.64	10/10/1995	M	9	22.33		5.25			24.9	
8-YRK001.64	10/10/1995	M	11	22.35		5.2			25.1	
8-YRK001.64	10/10/1995	M	13	22.25		5.26			25.6	
8-YRK001.64	10/10/1995	M	15	22.2		5.4			25.7	
8-YRK001.64	10/10/1995	M	17	22.15		5.48			25.8	
8-YRK001.64	10/10/1995	B	19	22.13		5.5			25.9	
8-YRK001.64	11/16/1995	S	15	11.71	7.92	8.57			23.7	
8-YRK001.64	11/16/1995	S	1	10.72	7.91	8.9			21.2	1.9
8-YRK001.64	11/16/1995	M	3	10.9		8.86			21.3	
8-YRK001.64	11/16/1995	M	5	11.03		8.84			21.5	
8-YRK001.64	11/16/1995	M	7	11.28		8.79			22	
8-YRK001.64	11/16/1995	M	9	11.47		8.71			22.6	
8-YRK001.64	11/16/1995	M	11	11.62		8.55			23.4	
8-YRK001.64	11/16/1995	B	13	11.7		8.54			23.6	
8-YRK001.64	12/4/1995	S	20.99	8.62	8.04	9.96			24.2	
8-YRK001.64	12/4/1995	S	1	8.99	8.1	9.84			22.4	2.6
8-YRK001.64	12/4/1995	M	3	9.03		9.86			22.4	
8-YRK001.64	12/4/1995	M	5	8.96		9.88			22.8	
8-YRK001.64	12/4/1995	M	7	8.81		9.75			23.3	
8-YRK001.64	12/4/1995	M	9	8.75		9.77			23.5	
8-YRK001.64	12/4/1995	M	11	8.66		9.76			23.8	
8-YRK001.64	12/4/1995	M	13	8.65		9.75			24	
8-YRK001.64	12/4/1995	M	15	8.64		9.8			24.1	
8-YRK001.64	12/4/1995	M	17	8.64		9.86			24.1	
8-YRK001.64	12/4/1995	B	19	8.63		9.88			24.1	
8-YRK001.64	1/16/1996	S	19.99	1.62	7.68	11.52			24.1	
8-YRK001.64	1/16/1996	S	1	1.58	7.87	12.26			21	1.7
8-YRK001.64	1/16/1996	M	3	1.71		12.23			21.2	
8-YRK001.64	1/16/1996	M	5	1.72		12.19			21.3	
8-YRK001.64	1/16/1996	M	7	1.57		12.06			21.5	
8-YRK001.64	1/16/1996	M	9	1.51		12			21.6	
8-YRK001.64	1/16/1996	M	11	1.5		11.75			22.1	
8-YRK001.64	1/16/1996	M	13	1.45		11.62			22.5	
8-YRK001.64	1/16/1996	M	15	1.5		11.38			23.2	
8-YRK001.64	1/16/1996	M	17	1.6		11.18			23.7	
8-YRK001.64	1/16/1996	B	19	1.62		11.27			24.1	
8-YRK001.64	2/26/1996	S	14	3.78	7.95	12.45			21.5	
8-YRK001.64	2/26/1996	S	1	5.1	8.11	12.72			17.2	0.9
8-YRK001.64	2/26/1996	M	3	4.94		12.65			18.7	
8-YRK001.64	2/26/1996	M	5	4.8		12.8			19.3	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	2/26/1996	M	7	4.68		12.78			19.8	
8-YRK001.64	2/26/1996	M	9	4.37		12.65			20.4	
8-YRK001.64	2/26/1996	M	11	4.04		12.45			21	
8-YRK001.64	2/26/1996	B	13	3.82		12.25			21.5	
8-YRK001.64	3/4/1996	S	13	3.82	7.67	10.11			26	
8-YRK001.64	3/4/1996	S	1	4.23	7.98	11.81			15.8	0.9
8-YRK001.64	3/4/1996	M	3	4.47		11.77			16.2	
8-YRK001.64	3/4/1996	M	5	4.7		11.56			17.8	
8-YRK001.64	3/4/1996	M	7	4.36		10.8			20.7	
8-YRK001.64	3/4/1996	M	9	4.04		10.22			23.2	
8-YRK001.64	3/4/1996	B	11	3.98		10.19			24.6	
8-YRK001.64	4/15/1996	S	14	8.39	7.74	8.6			20.1	
8-YRK001.64	4/15/1996	S	1	11.57	8.18	10.9			15.8	1.9
8-YRK001.64	4/15/1996	M	3	11.53		10.82			15.8	
8-YRK001.64	4/15/1996	M	5	11.44		10.54			16	
8-YRK001.64	4/15/1996	M	7	10.92		9.93			16.4	
8-YRK001.64	4/15/1996	M	9	9.88		9.4			16.9	
8-YRK001.64	4/15/1996	M	11	9.21		8.94			18.1	
8-YRK001.64	4/15/1996	B	13	8.87		8.75			18.5	
8-YRK001.64	5/21/1996	S	19	15.92	7.82	4.14			20	
8-YRK001.64	5/21/1996	S	1	19.58	7.72	6.68			16.6	1.5
8-YRK001.64	5/21/1996	M	3	19.28		6.5			16.8	
8-YRK001.64	5/21/1996	M	5	18.67		6.32			17.2	
8-YRK001.64	5/21/1996	M	7	18.45		7.07			17.8	
8-YRK001.64	5/21/1996	M	9	17.12		6.35			18.3	
8-YRK001.64	5/21/1996	M	11	16.84		5.84			18.6	
8-YRK001.64	5/21/1996	M	13	16.32		4.63			19.3	
8-YRK001.64	5/21/1996	M	15	16.2		4.49			19.4	
8-YRK001.64	5/21/1996	B	17	16.04		4.23			19.8	
8-YRK001.64	6/4/1996	S	18	19.45	7.7	6.07			15	
8-YRK001.64	6/4/1996	S	1	19.36	7.88	7.32			14.8	1.1
8-YRK001.64	6/4/1996	M	3	19.42		7.1			15	
8-YRK001.64	6/4/1996	M	5	19.47		6.9			15	
8-YRK001.64	6/4/1996	M	7	19.46		6.86			14.9	
8-YRK001.64	6/4/1996	M	9	19.51		6.69			14.8	
8-YRK001.64	6/4/1996	M	11	19.53		6.61			14.8	
8-YRK001.64	6/4/1996	M	13	19.5		6.35			14.9	
8-YRK001.64	6/4/1996	M	15	19.49		6.26			15	
8-YRK001.64	6/4/1996	B	17	19.48		6.26			15	
8-YRK001.64	7/9/1996	S	15	24.11	7.68	2.66			19.9	
8-YRK001.64	7/9/1996	S	1	25.71	7.92	6.18			17.4	1
8-YRK001.64	7/9/1996	M	3	25.75		6.21			17.4	
8-YRK001.64	7/9/1996	M	5	25.66		5.65			17.3	
8-YRK001.64	7/9/1996	M	7	25.55		5.22			17.5	
8-YRK001.64	7/9/1996	M	9	25.36		4.9			17.8	
8-YRK001.64	7/9/1996	M	11	24.85		3.75			18.5	
8-YRK001.64	7/9/1996	B	13	24.33		2.98			19.6	
8-YRK001.64	8/6/1996	S	20.99	25.49	7.47	2.85			18.4	
8-YRK001.64	8/6/1996	S	1	26.57	7.78	6.01			17.7	1
8-YRK001.64	8/6/1996	M	3	26.59		6.06			17.7	
8-YRK001.64	8/6/1996	M	5	26.56		6.32			17.7	
8-YRK001.64	8/6/1996	M	7	26.52		5.41			17.7	
8-YRK001.64	8/6/1996	M	9	26.38		5.25			17.7	
8-YRK001.64	8/6/1996	M	11	26.27		4.47			17.7	
8-YRK001.64	8/6/1996	M	13	26.07		3.88			17.7	
8-YRK001.64	8/6/1996	M	15	26.01		4.08			17.8	
8-YRK001.64	8/6/1996	M	17	25.72		3.34			18.1	
8-YRK001.64	8/6/1996	B	19	25.54		2.9			18.3	
8-YRK001.64	9/10/1996	S	18	25.4	7.52	3.46			21.1	
8-YRK001.64	9/10/1996	S	1	26.44	7.78	7.15			16.5	1.4
8-YRK001.64	9/10/1996	M	3	26.37		6.71			16.7	
8-YRK001.64	9/10/1996	M	5	26.21		5.85			17.1	
8-YRK001.64	9/10/1996	M	7	26.02		5.11			17.6	
8-YRK001.64	9/10/1996	M	9	25.8		4.4			19	
8-YRK001.64	9/10/1996	M	11	25.64		4.22			19.7	
8-YRK001.64	9/10/1996	M	13	25.51		3.96			20.3	
8-YRK001.64	9/10/1996	M	15	25.46		3.76			20.7	
8-YRK001.64	9/10/1996	B	17	25.43		3.64			20.8	
8-YRK001.64	10/15/1996	S	18	17.39	7.97	7.07			17	
8-YRK001.64	10/15/1996	S	1	17.96	7.9	7.51			15	1.5
8-YRK001.64	10/15/1996	M	3	17.95		7.36			15	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/15/1996	M	5	17.71		6.88			15.6	
8-YRK001.64	10/15/1996	M	7	17.61		6.84			15.9	
8-YRK001.64	10/15/1996	M	9	17.55		6.95			16	
8-YRK001.64	10/15/1996	M	11	17.41		7.12			16.4	
8-YRK001.64	10/15/1996	M	13	17.43		6.95			16.5	
8-YRK001.64	10/15/1996	M	15	17.4		7.06			16.9	
8-YRK001.64	10/15/1996	B	17	17.39		7.05			16.9	
8-YRK001.64	12/3/1996	S	15	9.64	7.72	8.27			26.8	
8-YRK001.64	12/3/1996	S	1	9.24	7.91	11.02			16.1	1.7
8-YRK001.64	12/3/1996	M	3	9.11		11.03			16.2	
8-YRK001.64	12/3/1996	M	5	9.21		11.04			16.2	
8-YRK001.64	12/3/1996	M	7	9.29		10.84			16.4	
8-YRK001.64	12/3/1996	M	9	9.1		9.89			17.1	
8-YRK001.64	12/3/1996	M	11	9.01		8.78			21.6	
8-YRK001.64	12/3/1996	B	13	9.48		8.2			25.9	
8-YRK001.64	1/7/1997	S	20.99	8.26	7.63	7.51			25.7	
8-YRK001.64	1/7/1997	S	1	8.61	7.99	11.02			14.5	1.6
8-YRK001.64	1/7/1997	M	3	9.01		10.62			14.8	
8-YRK001.64	1/7/1997	M	5	8.99		10.57			14.8	
8-YRK001.64	1/7/1997	M	7	8.82		9.91			16.4	
8-YRK001.64	1/7/1997	M	9	8.19		8.52			20.6	
8-YRK001.64	1/7/1997	M	11	8.16		7.62			23.9	
8-YRK001.64	1/7/1997	M	13	8.19		7.58			24.7	
8-YRK001.64	1/7/1997	M	15	8.24		7.54			25.3	
8-YRK001.64	1/7/1997	M	17	8.25		7.52			25.5	
8-YRK001.64	1/7/1997	B	19	8.25		7.51			25.6	
8-YRK001.64	2/4/1997	S	13	5.36	7.61	9.17			22.3	
8-YRK001.64	2/4/1997	S	1	4.99	8.08	13.16			14.4	1.5
8-YRK001.64	2/4/1997	M	3	5.13		13.18			14.5	
8-YRK001.64	2/4/1997	M	5	5.15		13.17			14.6	
8-YRK001.64	2/4/1997	M	7	5.26		12.99			14.6	
8-YRK001.64	2/4/1997	M	9	5.44		10.33			17.9	
8-YRK001.64	2/4/1997	B	11	5.3		9.67			19.9	
8-YRK001.64	3/4/1997	S	17	6.91	7.83	9.02			23.5	
8-YRK001.64	3/4/1997	S	1	8.27	8.13	10.95			15	
8-YRK001.64	3/4/1997	M	3	8.72		10.69			15.1	
8-YRK001.64	3/4/1997	M	5	8.74		10.68			15.1	
8-YRK001.64	3/4/1997	M	7	8.74		10.64			15.2	
8-YRK001.64	3/4/1997	M	9	8.96		10.26			15.3	
8-YRK001.64	3/4/1997	M	11	8.3		9.68			16.5	
8-YRK001.64	3/4/1997	M	13	6.83		9.07			21.9	
8-YRK001.64	3/4/1997	B	15	6.83		9.08			22.6	
8-YRK001.64	4/8/1997	S	13	10.22	7.63	6.89			24.3	
8-YRK001.64	4/8/1997	S	1	13.17	8.05	9.5			17.4	0.9
8-YRK001.64	4/8/1997	M	3	13.2		9.22			17.4	
8-YRK001.64	4/8/1997	M	5	13.31		9.19			17.5	
8-YRK001.64	4/8/1997	M	7	13.25		9.09			17.7	
8-YRK001.64	4/8/1997	M	9	12.78		8.7			18.7	
8-YRK001.64	4/8/1997	B	11	11.04		7.18			21.9	
8-YRK001.64	5/12/1997	S	9	15.42		8.05			17.8	
8-YRK001.64	5/12/1997	B	16	15.01	7.63	8			18.7	
8-YRK001.64	5/12/1997	S	1	15.87	7.59	8.32			15.7	
8-YRK001.64	5/12/1997	M	3	15.88		8.31			15.8	
8-YRK001.64	5/12/1997	M	5	15.89		8.31			16	
8-YRK001.64	5/12/1997	M	7	15.7		8.1			17.2	
8-YRK001.64	5/12/1997	M	11	15.3		8.15			18	
8-YRK001.64	5/12/1997	M	13	15.07		7.94			18.5	
8-YRK001.64	5/12/1997	B	15	15.01		7.88			18.6	
8-YRK001.64	6/10/1997	S	19	18.77	7.74	7.08			17.8	
8-YRK001.64	6/10/1997	S	1	19.4	8.08	8.9			17.2	1.7
8-YRK001.64	6/10/1997	M	3	19.62		8.66			17.3	
8-YRK001.64	6/10/1997	M	5	19.12		8.13			17.6	
8-YRK001.64	6/10/1997	M	7	19.04		7.83			17.7	
8-YRK001.64	6/10/1997	M	9	18.96		7.55			17.7	
8-YRK001.64	6/10/1997	M	11	18.88		7.31			17.7	
8-YRK001.64	6/10/1997	M	13	18.85		7.19			17.7	
8-YRK001.64	6/10/1997	M	15	18.79		7.03			17.7	
8-YRK001.64	6/10/1997	B	17	18.77		7.03			17.8	
8-YRK001.64	7/8/1997	S	15	25.16	7.36	2.79			20.3	
8-YRK001.64	7/8/1997	S	1	26.77	7.8	7.3			19.4	1.5
8-YRK001.64	7/8/1997	M	3	26.75		6.94			19.4	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/8/1997	M	5	26.65		6.31			19.5	
8-YRK001.64	7/8/1997	M	7	26.3		5.21			19.6	
8-YRK001.64	7/8/1997	M	9	25.8		4.07			19.8	
8-YRK001.64	7/8/1997	M	11	25.75		3.82			19.7	
8-YRK001.64	7/8/1997	B	13	25.29		2.93			20.2	
8-YRK001.64	8/11/1997	S	19.99	24.12	7.6	1.98			27.2	
8-YRK001.64	8/11/1997	S	1	25.75	8.13	7.13			20.4	1.7
8-YRK001.64	8/11/1997	M	3	26.11		6.81			20.8	
8-YRK001.64	8/11/1997	M	5	26.29		6.32			21.1	
8-YRK001.64	8/11/1997	M	7	26.22		5.82			21.3	
8-YRK001.64	8/11/1997	M	9	26.19		3.9			21.8	
8-YRK001.64	8/11/1997	M	11	25.71		2.59			23.2	
8-YRK001.64	8/11/1997	M	13	24.78		2.28			25.4	
8-YRK001.64	8/11/1997	M	15	24.25		1.99			26.8	
8-YRK001.64	8/11/1997	M	17	24.18		1.84			27.1	
8-YRK001.64	8/11/1997	B	19	24.13		1.92			27.2	
8-YRK001.64	9/9/1997	S	19.99	23.66	7.61	3.1			26.7	
8-YRK001.64	9/9/1997	S	1	24.3	8.16	8.48			23	1.3
8-YRK001.64	9/9/1997	M	3	24.29		8.49			23.3	
8-YRK001.64	9/9/1997	M	5	24.3		8.41			23.4	
8-YRK001.64	9/9/1997	M	7	24.25		8.38			23.4	
8-YRK001.64	9/9/1997	M	9	24.21		7.81			23.4	
8-YRK001.64	9/9/1997	M	11	23.88		4.37			24	
8-YRK001.64	9/9/1997	M	13	23.7		3.35			25.5	
8-YRK001.64	9/9/1997	M	15	23.67		3.09			26.2	
8-YRK001.64	9/9/1997	M	17	23.67		3.2			26.5	
8-YRK001.64	9/9/1997	B	19	23.67		3.06			26.6	
8-YRK001.64	10/7/1997	S	15	20.91	7.67	5.48			24.4	
8-YRK001.64	10/7/1997	S	1	21.64	7.74	6.63			23.9	1.3
8-YRK001.64	10/7/1997	M	3	21.64		6.56			24	
8-YRK001.64	10/7/1997	M	5	21.63		6.47			24.1	
8-YRK001.64	10/7/1997	M	7	21.52		6.21			24.2	
8-YRK001.64	10/7/1997	M	9	21.04		5.6			24.4	
8-YRK001.64	10/7/1997	M	11	20.96		5.51			24.4	
8-YRK001.64	10/7/1997	B	13	20.94		5.46			24.4	
8-YRK001.64	11/4/1997	S	19.99	15.67	7.87	6.87			26.7	
8-YRK001.64	11/4/1997	S	1	15.33	7.82	7.59			23.1	1.6
8-YRK001.64	11/4/1997	M	3	15.46		7.57			23.6	
8-YRK001.64	11/4/1997	M	5	15.48		7.58			23.5	
8-YRK001.64	11/4/1997	M	7	15.56		7.59			23.9	
8-YRK001.64	11/4/1997	M	9	15.59		7.59			24	
8-YRK001.64	11/4/1997	M	11	15.58		7.52			24.3	
8-YRK001.64	11/4/1997	M	13	15.55		7.37			25.2	
8-YRK001.64	11/4/1997	M	15	15.61		7.09			26.1	
8-YRK001.64	11/4/1997	M	17	15.64		6.94			26.4	
8-YRK001.64	11/4/1997	B	19	15.67		6.86			26.6	
8-YRK001.64	12/3/1997	S	19	10.23	7.8	8.07			26.2	
8-YRK001.64	12/3/1997	S	1	8.93	7.81	9.3			21.9	1.6
8-YRK001.64	12/3/1997	M	3	9.13		9.2			22.6	
8-YRK001.64	12/3/1997	M	5	9.23		9.14			22.8	
8-YRK001.64	12/3/1997	M	7	9.39		9.11			23.1	
8-YRK001.64	12/3/1997	M	9	9.49		9.07			23.4	
8-YRK001.64	12/3/1997	M	11	9.75		8.68			24.5	
8-YRK001.64	12/3/1997	M	13	9.81		8.6			24.9	
8-YRK001.64	12/3/1997	M	15	9.96		8.41			25.3	
8-YRK001.64	12/3/1997	B	17	10.08		8.26			25.7	
8-YRK001.64	1/6/1998	S	19	5.72	7.89	10.86			22.4	
8-YRK001.64	1/6/1998	S	1	6.76	7.91	10.96			21.1	1.9
8-YRK001.64	1/6/1998	M	3	6.07		10.96			21.7	
8-YRK001.64	1/6/1998	M	5	6.05		10.86			21.8	
8-YRK001.64	1/6/1998	M	7	5.78		10.8			22.1	
8-YRK001.64	1/6/1998	M	9	5.72		10.81			22.3	
8-YRK001.64	1/6/1998	M	11	5.72		10.82			22.3	
8-YRK001.64	1/6/1998	M	13	5.72		10.82			22.4	
8-YRK001.64	1/6/1998	M	15	5.72		10.82			22.4	
8-YRK001.64	1/6/1998	B	17	5.72		10.83			22.4	
8-YRK001.64	2/3/1998	S	19.99	6.03	7.74	10.58			19.6	
8-YRK001.64	2/3/1998	S	1	6.52	7.88	11.34			14.7	1.5
8-YRK001.64	2/3/1998	M	3	6.43		11.1			16	
8-YRK001.64	2/3/1998	M	5	6.32		10.94			17.7	
8-YRK001.64	2/3/1998	M	7	6.13		10.88			18.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	2/3/1998	M	9	6.11		10.4			19.2	
8-YRK001.64	2/3/1998	M	11	6.11		10.41			19.3	
8-YRK001.64	2/3/1998	M	13	6.05		10.42			19.4	
8-YRK001.64	2/3/1998	M	15	6.03		10.42			19.5	
8-YRK001.64	2/3/1998	M	17	6.03		10.43			19.5	
8-YRK001.64	2/3/1998	B	19	6.04		10.47			19.5	
8-YRK001.64	3/23/1998	S	19.99	7.23	7.59	7.73			25.9	
8-YRK001.64	3/23/1998	S	1	7.93	8.2	11.39			10.9	0.9
8-YRK001.64	3/23/1998	M	3	8.03		10.78			12.3	
8-YRK001.64	3/23/1998	M	5	8.04		10.69			13.8	
8-YRK001.64	3/23/1998	M	7	7.96		10.25			14.5	
8-YRK001.64	3/23/1998	M	9	7.76		10.16			15.2	
8-YRK001.64	3/23/1998	M	11	7.45		8.16			20.7	
8-YRK001.64	3/23/1998	M	13	7.25		7.52			25.3	
8-YRK001.64	3/23/1998	M	15	7.24		7.54			25.6	
8-YRK001.64	3/23/1998	M	17	7.22		7.6			25.8	
8-YRK001.64	3/23/1998	B	19	7.23		7.66			25.9	
8-YRK001.64	4/7/1998	S	20.99	10.45	7.52	6.71			23.9	
8-YRK001.64	4/7/1998	S	1	12.37	7.67	8.54			11.9	1.4
8-YRK001.64	4/7/1998	M	3	12.35		8.57			13.4	
8-YRK001.64	4/7/1998	M	5	12.01		8.51			14.8	
8-YRK001.64	4/7/1998	M	7	11.61		8.42			15.6	
8-YRK001.64	4/7/1998	M	9	11.31		7.86			16.6	
8-YRK001.64	4/7/1998	M	11	10.67		6.97			21.1	
8-YRK001.64	4/7/1998	M	13	10.52		6.69			22.8	
8-YRK001.64	4/7/1998	M	15	10.48		6.62			23.5	
8-YRK001.64	4/7/1998	M	17	10.46		6.57			23.7	
8-YRK001.64	4/7/1998	B	19	10.45		6.59			23.9	
8-YRK001.64	5/11/1998	S	11	16.36	7.08	4.56			18.3	
8-YRK001.64	5/11/1998	S	1	17.36	7.27	6.7			13	1
8-YRK001.64	5/11/1998	M	3	17.38		6.58			13	
8-YRK001.64	5/11/1998	M	5	17.35		6.31			13.5	
8-YRK001.64	5/11/1998	M	7	16.71		4.74			15.2	
8-YRK001.64	5/11/1998	B	9	16.42		4.4			18.1	
8-YRK001.64	6/9/1998	S	13	19.03	7.14	1.98			21.8	
8-YRK001.64	6/9/1998	S	1	21.56	7.71	7.36			13.8	1
8-YRK001.64	6/9/1998	M	3	21.69		7.27			13.9	
8-YRK001.64	6/9/1998	M	5	21.76		6.77			14.2	
8-YRK001.64	6/9/1998	M	7	21.23		5.46			15.1	
8-YRK001.64	6/9/1998	M	9	20.5		3.17			17.9	
8-YRK001.64	6/9/1998	M	11	19.19		2.02			21.4	
8-YRK001.64	6/9/1998	B	13	19.03		1.98			21.8	
8-YRK001.64	7/7/1998	S	14	19.94	7.22	0.91			25.7	
8-YRK001.64	7/7/1998	S	1	26.3	8.13	6.9			16.6	1.4
8-YRK001.64	7/7/1998	M	3	26.7		6.52			16.7	
8-YRK001.64	7/7/1998	M	5	26.6		6.02			16.9	
8-YRK001.64	7/7/1998	M	7	25.91		5.25			17.3	
8-YRK001.64	7/7/1998	M	9	24.04		2.68			19.8	
8-YRK001.64	7/7/1998	M	11	21.38		1.17			22.6	
8-YRK001.64	7/7/1998	B	13	20.12		0.76			25.5	
8-YRK001.64	8/4/1998	S	13	24.79	7.47	3.5			22.5	
8-YRK001.64	8/4/1998	S	1	25.72	7.9	6.2			19.5	1.2
8-YRK001.64	8/4/1998	M	3	25.74		6.18			19.5	
8-YRK001.64	8/4/1998	M	5	25.77		6.19			19.5	
8-YRK001.64	8/4/1998	M	7	25.77		6.21			19.6	
8-YRK001.64	8/4/1998	M	9	25.79		6.19			19.6	
8-YRK001.64	8/4/1998	B	11	25.56		4.9			20	
8-YRK001.64	9/8/1998	S	14	26.75	7.63	3.86			20.3	
8-YRK001.64	9/8/1998	S	1	26.74	7.65	3.95			20.5	1
8-YRK001.64	9/8/1998	M	3	26.75		3.93			20.5	
8-YRK001.64	9/8/1998	M	5	26.77		3.92			20.2	
8-YRK001.64	9/8/1998	M	7	26.75		3.94			20.5	
8-YRK001.64	9/8/1998	M	9	26.76		3.93			20.5	
8-YRK001.64	9/8/1998	M	11	26.77		3.89			20.5	
8-YRK001.64	9/8/1998	B	13	26.76		3.88			20.5	
8-YRK001.64	10/13/1998	S	18	20.43	7.82	6.57			22.7	
8-YRK001.64	10/13/1998	S	1	20.69	7.78	6.83			22.1	1.3
8-YRK001.64	10/13/1998	M	3	20.74		6.89			22.4	
8-YRK001.64	10/13/1998	M	5	20.71		7.01			22.4	
8-YRK001.64	10/13/1998	M	7	20.62		7.15			22.3	
8-YRK001.64	10/13/1998	M	9	20.48		7.28			22.3	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/13/1998	M	11	20.59		6.78			22.5	
8-YRK001.64	10/13/1998	M	13	20.49		6.75			22.6	
8-YRK001.64	10/13/1998	M	15	20.44		6.73			22.7	
8-YRK001.64	10/13/1998	B	17	20.43		6.66			22.7	
8-YRK001.64	11/9/1998	S	13	13.65	7.87	7.93			22.6	
8-YRK001.64	11/9/1998	S	1	13.52	7.84	7.75			22.5	1.8
8-YRK001.64	11/9/1998	M	3	13.56		7.77			22.5	
8-YRK001.64	11/9/1998	M	5	13.58		7.78			22.5	
8-YRK001.64	11/9/1998	M	7	13.59		7.79			22.5	
8-YRK001.64	11/9/1998	M	9	13.6		7.83			22.4	
8-YRK001.64	11/9/1998	M	11	13.64		7.9			22.6	
8-YRK001.64	11/9/1998	B	13	13.65		7.93			22.6	
8-YRK001.64	12/8/1998	S	12	13.63		7.92			22.7	
8-YRK001.64	12/8/1998	S	1	13.81	7.88	7.74			22.9	2.2
8-YRK001.64	12/8/1998	M	3	13.78		7.93			22.9	
8-YRK001.64	12/8/1998	M	5	13.73		8.15			23.9	
8-YRK001.64	12/8/1998	M	7	13.77		8.11			23.1	
8-YRK001.64	12/8/1998	M	9	13.74		7.98			23.8	
8-YRK001.64	12/8/1998	B	11	13.71		7.95			23.2	
8-YRK001.64	1/5/1999	B	14	5.87	7.8	9.91			22.9	
8-YRK001.64	1/5/1999	S	1	5.63	7.83	10.05			21.9	1.4
8-YRK001.64	1/5/1999	M	3	5.63		10.01			21.8	
8-YRK001.64	1/5/1999	M	5	5.75		9.98			21.7	
8-YRK001.64	1/5/1999	M	7	5.92		10			21.4	
8-YRK001.64	1/5/1999	M	9	6.02		9.99			21.8	
8-YRK001.64	1/5/1999	M	11	6.01		9.94			22.5	
8-YRK001.64	1/5/1999	M	13	5.91		9.97			22.5	
8-YRK001.64	2/9/1999	B	16	7.17	7.19	8.98			24.4	
8-YRK001.64	2/9/1999	S	1	7.56	7.45	9.23			20.5	1.8
8-YRK001.64	2/9/1999	M	3	7.73		9.18			20.8	
8-YRK001.64	2/9/1999	M	5	7.67		9.25			21.4	
8-YRK001.64	2/9/1999	M	7	7.55		9.12			22.2	
8-YRK001.64	2/9/1999	M	9	7.26		8.98			23.2	
8-YRK001.64	2/9/1999	M	11	7.23		8.93			23	
8-YRK001.64	2/9/1999	M	13	7.17		8.68			24.3	
8-YRK001.64	2/9/1999	M	15	7.17		8.74			24.2	
8-YRK001.64	3/9/1999	B	20	6.35	7.13	8.93			22.2	
8-YRK001.64	3/9/1999	S	1	6.36	7.13	8.98			19.5	1.2
8-YRK001.64	3/9/1999	M	3	6.4		8.96			19.5	
8-YRK001.64	3/9/1999	M	5	7.33		8.81			20.7	
8-YRK001.64	3/9/1999	M	7	6.92		8.85			21.5	
8-YRK001.64	3/9/1999	M	9	6.5		8.85			22.1	
8-YRK001.64	3/9/1999	M	11	6.36		8.85			22.2	
8-YRK001.64	3/9/1999	M	13	6.36		8.85			22.2	
8-YRK001.64	3/9/1999	M	15	6.35		8.82			22.1	
8-YRK001.64	3/9/1999	M	17	6.35		8.82			22.2	
8-YRK001.64	3/9/1999	M	19	6.35		8.85			22.2	
8-YRK001.64	4/6/1999	B	13	10.04	7.53	8.91			19.8	
8-YRK001.64	4/6/1999	S	1	11.5	7.75	9.31			18.3	1.1
8-YRK001.64	4/6/1999	M	3	11.57		9.34			18.5	
8-YRK001.64	4/6/1999	M	5	11.54		9.23			18.5	
8-YRK001.64	4/6/1999	M	7	11.55		9.18			18.4	
8-YRK001.64	4/6/1999	M	9	11.57		9.12			18.5	
8-YRK001.64	4/6/1999	M	11	11.29		9.17			18.7	
8-YRK001.64	5/5/1999	B	14	13.41	7.72	8.23			20.2	
8-YRK001.64	5/5/1999	S	1	14.46	7.86	8.99			19.2	1.5
8-YRK001.64	5/5/1999	M	3	14.46		8.81			19.2	
8-YRK001.64	5/5/1999	M	5	14.25		8.59			19.3	
8-YRK001.64	5/5/1999	M	7	14.31		8.33			19.5	
8-YRK001.64	5/5/1999	M	9	13.96		8.25			19.7	
8-YRK001.64	5/5/1999	M	11	13.58		8.19			20	
8-YRK001.64	5/5/1999	M	13	13.42		8.15			23.3	
8-YRK001.64	6/8/1999	B	14	20.23	7.29	2.34			23.7	
8-YRK001.64	6/8/1999	S	1	24.21	7.99	7.34			21.2	1.6
8-YRK001.64	6/8/1999	M	3	24.21		7.35			21.2	
8-YRK001.64	6/8/1999	M	5	24.15		7.19			21.1	
8-YRK001.64	6/8/1999	M	7	23.52		6.81			21.1	
8-YRK001.64	6/8/1999	M	9	22.78		5.51			21.4	
8-YRK001.64	6/8/1999	M	11	21.93		4.31			21.9	
8-YRK001.64	6/8/1999	M	13	20.62		2.81			22.3	
8-YRK001.64	7/6/1999	B	13	24.37	7.56	4.12			22.9	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/6/1999	S	1	27.19	8.03	8.14			21.7	1.5
8-YRK001.64	7/6/1999	M	3	27.23	8.03	8.06			21.9	
8-YRK001.64	7/6/1999	M	5	27.06		7.19			22.1	
8-YRK001.64	7/6/1999	M	7	25.9		6.26			22.2	
8-YRK001.64	7/6/1999	M	9	25.73		5.86			22.3	
8-YRK001.64	7/6/1999	M	11	24.68		4.58			22.8	
8-YRK001.64	8/3/1999	B	13	28.33	7.64	3.04			23.1	
8-YRK001.64	8/3/1999	S	1	28.84	7.81	5.2			22.9	1.4
8-YRK001.64	8/3/1999	M	3	28.7		5.22			23	
8-YRK001.64	8/3/1999	M	5	28.19		5.68			23.2	
8-YRK001.64	8/3/1999	M	7	24.97		5.33			25.1	
8-YRK001.64	8/3/1999	M	9	24.75		4.46			25.5	
8-YRK001.64	8/3/1999	M	11	25.51		3.55			24.9	
8-YRK001.64	9/8/1999	S	1	23.94	7.63	5.95			22.5	1.2
8-YRK001.64	9/8/1999	M	3	23.93		5.95			22.5	
8-YRK001.64	9/8/1999	M	5	23.83		5.9			22.6	
8-YRK001.64	9/8/1999	M	7	23.8		5.9			22.5	
8-YRK001.64	9/8/1999	M	9	23.76		5.81			22.7	
8-YRK001.64	9/8/1999	M	11	23.77		5.81			22.8	
8-YRK001.64	9/8/1999	M	13	23.67		5.53			23.2	
8-YRK001.64	9/8/1999	B	14	23.66	7.64	5.56			23.2	
8-YRK001.64	10/5/1999	B	13	21.49	7.81	5.81			23.1	
8-YRK001.64	10/5/1999	S	1	21.84	7.82	6.68			19.8	1.1
8-YRK001.64	10/5/1999	M	3	21.88		6.61			20	
8-YRK001.64	10/5/1999	M	5	21.9		6.52			20.2	
8-YRK001.64	10/5/1999	M	7	21.53		6.08			22.2	
8-YRK001.64	10/5/1999	M	9	21.51		6.03			22.6	
8-YRK001.64	10/5/1999	M	11	21.49		5.85			22.9	
8-YRK001.64	11/2/1999	B	20	16.17	7.78	7.39			22.8	
8-YRK001.64	11/2/1999	S	1	16.99	7.92	8.77			20.3	1.6
8-YRK001.64	11/2/1999	M	3	16.97		8.83			20.6	
8-YRK001.64	11/2/1999	M	5	16.72		8.45			20.7	
8-YRK001.64	11/2/1999	M	7	16.53		8.21			20.9	
8-YRK001.64	11/2/1999	M	9	16.37		8.13			21.7	
8-YRK001.64	11/2/1999	M	11	16.31		7.97			22	
8-YRK001.64	11/2/1999	M	13	16.25		7.72			22.1	
8-YRK001.64	11/2/1999	M	15	16.2		7.3			22.6	
8-YRK001.64	11/2/1999	M	17	16.18		7.33			22.7	
8-YRK001.64	11/2/1999	M	19	16.17		7.33			22.7	
8-YRK001.64	12/8/1999	B	14	10.23	7.61	7.25			27.2	
8-YRK001.64	12/8/1999	S	1	9.84	7.73	8.93			23.6	1.6
8-YRK001.64	12/8/1999	M	3	9.94		8.91			23.6	
8-YRK001.64	12/8/1999	M	5	10.07		8.03			23.8	
8-YRK001.64	12/8/1999	M	7	10.19		8.69			24	
8-YRK001.64	12/8/1999	M	9	10.19		8.56			24.2	
8-YRK001.64	12/8/1999	M	11	10.17		8.37			24.6	
8-YRK001.64	12/8/1999	M	13	10.19		7.69			26	
8-YRK001.64	1/19/2000	B	13	4.79	7.5	10.43			23.8	
8-YRK001.64	1/19/2000	S	1	4.53	7.59	10.67			21.4	1.7
8-YRK001.64	1/19/2000	M	3	4.54		10.69			21.4	
8-YRK001.64	1/19/2000	M	5	4.54		10.65			21.6	
8-YRK001.64	1/19/2000	M	7	4.61		10.41			23.2	
8-YRK001.64	1/19/2000	M	9	4.65		10.37			23.3	
8-YRK001.64	1/19/2000	M	11	4.69		10.54			23.4	
8-YRK001.64	2/8/2000	B	14	2.35	7.28	11.11			24.8	
8-YRK001.64	2/8/2000	S	1	3.04	7.46	11.6			22.8	1.2
8-YRK001.64	2/8/2000	M	3	3.03		11.6			22.8	
8-YRK001.64	2/8/2000	M	5	3		11.59			22.8	
8-YRK001.64	2/8/2000	M	7	2.94		11.48			23.1	
8-YRK001.64	2/8/2000	M	9	2.82		11.39			23.2	
8-YRK001.64	2/8/2000	M	11	2.7		11.22			23.7	
8-YRK001.64	2/8/2000	M	13	2.45		11.06			24.3	
8-YRK001.64	3/7/2000	B	14	7.35	7.46	9.35			24.4	
8-YRK001.64	3/7/2000	S	1	9.09	7.75	10.69			20.5	1.3
8-YRK001.64	3/7/2000	M	3	9.03		10.58			20.4	
8-YRK001.64	3/7/2000	M	5	9.05		10.47			20.5	
8-YRK001.64	3/7/2000	M	7	8.46		9.91			21.4	
8-YRK001.64	3/7/2000	M	9	7.99		9.65			22.7	
8-YRK001.64	3/7/2000	M	11	7.62		9.43			23.3	
8-YRK001.64	3/7/2000	M	13	7.38		9.33			24.3	
8-YRK001.64	5/9/2000	B	12	18.05	7.75	7.48			19.2	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	5/9/2000	S	1	19.06	7.7	7.59			18.1	1.3
8-YRK001.64	5/9/2000	M	3	19.05		7.57			18.2	
8-YRK001.64	5/9/2000	M	5	18.88		7.51			18.5	
8-YRK001.64	5/9/2000	M	7	18.84		7.51			18.5	
8-YRK001.64	5/9/2000	M	9	18.8		7.49			18.6	
8-YRK001.64	5/9/2000	M	11	18.23		7.37			19.1	
8-YRK001.64	6/6/2000	B	14	21.21	7.87	7.1			17	
8-YRK001.64	6/6/2000	S	1	21.22	7.88	7.04			17	0.9
8-YRK001.64	6/6/2000	M	3	21.23		7.05			17	
8-YRK001.64	6/6/2000	M	5	21.23		7.06			17	
8-YRK001.64	6/6/2000	M	7	21.23		7.05			17	
8-YRK001.64	6/6/2000	M	9	21.23		7.04			17	
8-YRK001.64	6/6/2000	M	11	21.23		7.07			17	
8-YRK001.64	6/6/2000	M	13	21.21		7.07			17	
8-YRK001.64	7/5/2000	B	14	25.39	7.78	5.66			19.6	
8-YRK001.64	7/5/2000	S	1	25.47	7.77	5.58			19.4	1
8-YRK001.64	7/5/2000	M	3	25.45		5.52			19.5	
8-YRK001.64	7/5/2000	M	5	25.45		5.55			19.5	
8-YRK001.64	7/5/2000	M	7	25.44		5.55			19.5	
8-YRK001.64	7/5/2000	M	9	25.42		5.55			19.6	
8-YRK001.64	7/5/2000	M	11	25.42		5.58			19.6	
8-YRK001.64	7/5/2000	M	13	25.4		5.58			19.6	
8-YRK001.64	8/8/2000	B	14	26.05	7.87	5.05			20.8	
8-YRK001.64	8/8/2000	S	1	27.02	7.96	6.6			19	1.1
8-YRK001.64	8/8/2000	M	3	26.95		6.06			19	
8-YRK001.64	8/8/2000	M	5	26.73		5.91			19.4	
8-YRK001.64	8/8/2000	M	7	26.66		5.75			20.3	
8-YRK001.64	8/8/2000	M	9	26.3		5.52			20.4	
8-YRK001.64	8/8/2000	M	11	26.23		5.36			20.6	
8-YRK001.64	8/8/2000	M	13	26.18		5.33			20.5	
8-YRK001.64	9/14/2000	B	14	23.73	7.54	3.73			22.6	
8-YRK001.64	9/14/2000	S	1	25.51	7.88	6.86			18.5	1.1
8-YRK001.64	9/14/2000	M	3	25.48		6.81			18.4	
8-YRK001.64	9/14/2000	M	5	25.41		6.65			18.5	
8-YRK001.64	9/14/2000	M	7	25.1		5.98			18.9	
8-YRK001.64	9/14/2000	M	9	25.01		5.86			19.1	
8-YRK001.64	9/14/2000	M	11	24.26		4.81			20.7	
8-YRK001.64	9/14/2000	M	13	23.77		3.84			22.3	
8-YRK001.64	10/10/2000	B	12	19.86	7.68	4.01			24.9	
8-YRK001.64	10/10/2000	S	1	17.54	7.96	7.45			19	1.4
8-YRK001.64	10/10/2000	M	3	17.66		7.39			19	
8-YRK001.64	10/10/2000	M	5	17.92		7.35			19.5	
8-YRK001.64	10/10/2000	M	7	18.04		7.31			19.5	
8-YRK001.64	10/10/2000	M	9	18.14		7.25			19.7	
8-YRK001.64	10/10/2000	M	11	18.98		5.75			22.7	
8-YRK001.64	11/7/2000	S	1	14.5	7.96	9.39			20.9	1.9
8-YRK001.64	11/7/2000	M	3	14.43		9.36			21	
8-YRK001.64	11/7/2000	M	5	14.3		9.33			21.3	
8-YRK001.64	11/7/2000	M	7	14.54		8			22.1	
8-YRK001.64	11/7/2000	M	9	15.37		6.41			24.4	
8-YRK001.64	11/7/2000	M	11	11.8		6.55			30	
8-YRK001.64	11/7/2000	M	13	12.31		7.06			31.9	
8-YRK001.64	11/7/2000	B	15	12.71	7.7	6.62			30.6	
8-YRK001.64	12/5/2000	S	1	6.63	7.8	11.63			21.4	1.6
8-YRK001.64	12/5/2000	M	3	6.9		11.32			21.6	
8-YRK001.64	12/5/2000	M	5	7.36		11.18			22.4	
8-YRK001.64	12/5/2000	M	7	7.42		11.06			22.8	
8-YRK001.64	12/5/2000	M	9	7.37		10.86			23.1	
8-YRK001.64	12/5/2000	M	11	7.31		10.84			23.2	
8-YRK001.64	12/5/2000	B	13	7.33	7.78	10.9			23.1	
8-YRK001.64	1/10/2001	S	1	2.95	7.74	11.73			25	1.5
8-YRK001.64	1/10/2001	M	3	2.95		11.75			25	
8-YRK001.64	1/10/2001	M	5	2.96		11.77			25	
8-YRK001.64	1/10/2001	M	7	2.97		11.76			25	
8-YRK001.64	1/10/2001	M	9	3		11.73			25	
8-YRK001.64	1/10/2001	M	11	3.02		11.7			25.1	
8-YRK001.64	1/10/2001	M	13	3.03		11.84			25.2	
8-YRK001.64	1/10/2001	B	14	3.04	7.65	11.93			25.2	
8-YRK001.64	2/6/2001	S	1	4.7	7.83	11.61			23.1	2
8-YRK001.64	2/6/2001	M	3	4.7		11.57			23.1	
8-YRK001.64	2/6/2001	M	5	4.7		11.61			23.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	2/6/2001	M	7	4.71		11.57			23.1	
8-YRK001.64	2/6/2001	M	9	4.69		11.49			23.1	
8-YRK001.64	2/6/2001	M	11	4.37		11.44			23.6	
8-YRK001.64	2/6/2001	M	13	4.31		11.41			23.9	
8-YRK001.64	2/6/2001	B	14	4.1	7.71	11.43			24.3	
8-YRK001.64	3/13/2001	S	1	7.05	7.57	10.29			20.9	2
8-YRK001.64	3/13/2001	M	3	6.84		10.35			21.1	
8-YRK001.64	3/13/2001	M	5	6.68		10.4			21.2	
8-YRK001.64	3/13/2001	M	7	6.6		10.44			21.3	
8-YRK001.64	3/13/2001	M	9	6.6		10.4			21.4	
8-YRK001.64	3/13/2001	M	11	6.64		10.4			21.4	
8-YRK001.64	3/13/2001	M	13	6.53		10.38			21.5	
8-YRK001.64	3/13/2001	M	15	6.17		10.6			21.8	
8-YRK001.64	3/13/2001	B	16	6.31	7.54	10.55			21.7	
8-YRK001.64	4/10/2001	S	1	13.07	7.69	8.91			18.2	1
8-YRK001.64	4/10/2001	M	3	12.68		8.93			18.7	
8-YRK001.64	4/10/2001	M	5	12.7		8.86			19.1	
8-YRK001.64	4/10/2001	M	7	12.27		8.9			19.7	
8-YRK001.64	4/10/2001	M	9	11.59		8.94			20.2	
8-YRK001.64	4/10/2001	M	11	11.48		9			20.5	
8-YRK001.64	4/10/2001	B	13	11.34	7.7	8.95			20.9	
8-YRK001.64	5/8/2001	S	1	17.73	7.57	7.21			19.8	1
8-YRK001.64	5/8/2001	M	3	17.76		7.16			19.8	
8-YRK001.64	5/8/2001	M	5	17.76		7.18			19.8	
8-YRK001.64	5/8/2001	M	7	17.78		7.17			19.8	
8-YRK001.64	5/8/2001	M	9	17.78		7.13			19.8	
8-YRK001.64	5/8/2001	M	11	17.75		7.17			19.8	
8-YRK001.64	5/8/2001	B	13	17.49	7.57	7.01			20.1	
8-YRK001.64	6/5/2001	S	1	21.81	7.77	6.29			19.1	1.2
8-YRK001.64	6/5/2001	M	3	21.62		6.04			19.2	
8-YRK001.64	6/5/2001	M	5	21.49		5.82			19.4	
8-YRK001.64	6/5/2001	M	7	21.46		5.82			19.4	
8-YRK001.64	6/5/2001	M	9	21.23		5.78			20.1	
8-YRK001.64	6/5/2001	M	11	20.96		5.47			20.6	
8-YRK001.64	6/5/2001	M	13	20.73		5.44			21.1	
8-YRK001.64	6/5/2001	M	15	20.57		5.36			21.4	
8-YRK001.64	6/5/2001	M	17	20.42		5.34			21.7	
8-YRK001.64	6/5/2001	M	19	20.28		5.2			22	
8-YRK001.64	6/5/2001	B	21	20.28	7.83	5.3			22	
8-YRK001.64	7/10/2001	S	1	26.12	7.93	6.36			21.3	1.5
8-YRK001.64	7/10/2001	M	3	26.31		6.29			21.2	
8-YRK001.64	7/10/2001	M	5	26.36		6.37			21.3	
8-YRK001.64	7/10/2001	M	7	26.19		5.83			21.4	
8-YRK001.64	7/10/2001	M	9	25.39		4.31			22.2	
8-YRK001.64	7/10/2001	M	11	24.72		3.62			22.9	
8-YRK001.64	7/10/2001	B	13	24.16	7.71	3.59			23.1	
8-YRK001.64	8/7/2001	S	1	22.19	7.93	8.01			24.1	1.3
8-YRK001.64	8/7/2001	M	3	20.31		8.16			25.3	
8-YRK001.64	8/7/2001	M	5	20.08		8.14			25.7	
8-YRK001.64	8/7/2001	M	7	19.21		7.83			26.4	
8-YRK001.64	8/7/2001	M	9	18.77		6.81			27.2	
8-YRK001.64	8/7/2001	M	11	18.42		5.86			27.7	
8-YRK001.64	8/7/2001	B	13	18.73	7.75	5.84			27.3	
8-YRK001.64	9/4/2001	S	1	26.06	7.8	5.92			22.4	1.3
8-YRK001.64	9/4/2001	M	3	26.07		6.01			22.4	
8-YRK001.64	9/4/2001	M	5	26.13		5.76			22.4	
8-YRK001.64	9/4/2001	M	7	26.24		5.26			22.4	
8-YRK001.64	9/4/2001	M	9	26.15		4.77			22.6	
8-YRK001.64	9/4/2001	M	11	25.84		3.58			23.1	
8-YRK001.64	9/4/2001	M	13	25.45		2.67			23.8	
8-YRK001.64	9/4/2001	M	15	25.18		2.27			24.3	
8-YRK001.64	9/4/2001	B	17	24.87	7.43	1.92			24.9	
8-YRK001.64	10/2/2001	S	1	19.79	7.85	6.62			23.1	1.2
8-YRK001.64	10/2/2001	M	3	19.79		6.61			23.1	
8-YRK001.64	10/2/2001	M	5	19.8		6.63			23.1	
8-YRK001.64	10/2/2001	M	7	19.81		6.62			23.1	
8-YRK001.64	10/2/2001	M	9	19.65		6.64			23.8	
8-YRK001.64	10/2/2001	M	11	19.51		6.65			24.2	
8-YRK001.64	10/2/2001	M	13	19.69		6.34			26.2	
8-YRK001.64	10/2/2001	B	15	19.78	7.82	6.13			27.3	
8-YRK001.64	11/5/2001	S	1	16.04	7.86	8.18			24.4	1.4

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	11/5/2001	M	3	16.04		8.24			24.4	
8-YRK001.64	11/5/2001	M	5	16.01		8.25			24.4	
8-YRK001.64	11/5/2001	M	7	16.03		8.27			24.4	
8-YRK001.64	11/5/2001	M	9	16.04		8.28			24.4	
8-YRK001.64	11/5/2001	M	11	15.99		8.31			24.5	
8-YRK001.64	11/5/2001	M	13	15.59		8.49			24.7	
8-YRK001.64	11/5/2001	B	14	15.56	7.85	8.53			24.7	
8-YRK001.64	12/4/2001	S	1	14.57	7.52	7.67			25.2	2.1
8-YRK001.64	12/4/2001	M	3	14.57		7.69			25.2	
8-YRK001.64	12/4/2001	M	5	14.57		7.72			25.2	
8-YRK001.64	12/4/2001	M	7	14.59		7.75			25.2	
8-YRK001.64	12/4/2001	M	9	14.6		7.82			25.2	
8-YRK001.64	12/4/2001	M	11	14.56		7.97			25.2	
8-YRK001.64	12/4/2001	B	12	14.48	7.52	8.15			25.2	
8-YRK001.64	1/14/2002	S	1	5.27	7.21	10.52			25.6	3
8-YRK001.64	1/14/2002	M	3	5.36		10.52			25.6	
8-YRK001.64	1/14/2002	M	5	5.36		10.54			25.7	
8-YRK001.64	1/14/2002	M	7	5.39		10.6			25.7	
8-YRK001.64	1/14/2002	M	9	5.41		10.64			25.8	
8-YRK001.64	1/14/2002	M	11	5.41		10.7			25.9	
8-YRK001.64	1/14/2002	M	13	5.4		10.76			26	
8-YRK001.64	1/14/2002	B	14	5.4	7.14	11.23			26	
8-YRK001.64	2/12/2002	S	1	7.08	7.35	10.07			24.7	1.9
8-YRK001.64	2/12/2002	M	3	7.1		10.06			24.8	
8-YRK001.64	2/12/2002	M	5	7.15		10.06			24.8	
8-YRK001.64	2/12/2002	M	7	7.21		10.02			24.9	
8-YRK001.64	2/12/2002	M	9	7.26		9.99			24.9	
8-YRK001.64	2/12/2002	M	11	7.21		9.97			25	
8-YRK001.64	2/12/2002	M	13	7.11		9.9			25.2	
8-YRK001.64	2/12/2002	M	15	7.09		9.91			25.3	
8-YRK001.64	2/12/2002	M	17	7.09		9.95			25.3	
8-YRK001.64	2/12/2002	B	18	7.09	7.29	10			25.3	
8-YRK001.64	3/12/2002	S	1	9.1	7.69				24.8	2.5
8-YRK001.64	3/12/2002	M	3	9.11					24.9	
8-YRK001.64	3/12/2002	M	5	9.12					25.1	
8-YRK001.64	3/12/2002	M	7	9.12					25.1	
8-YRK001.64	3/12/2002	M	9	9.09					25.1	
8-YRK001.64	3/12/2002	M	11	9.05					25.1	
8-YRK001.64	3/12/2002	B	13	8.85	7.63				25.6	
8-YRK001.64	4/9/2002	S	1	13.26	7.83	9.03			23.6	1.5
8-YRK001.64	4/9/2002	M	3	13.25		9.06			23.7	
8-YRK001.64	4/9/2002	M	5	13.24		9.13			23.6	
8-YRK001.64	4/9/2002	M	7	12.87		8.92			23	
8-YRK001.64	4/9/2002	M	9	12.07		8.71			24.5	
8-YRK001.64	4/9/2002	M	11	12		8.7			24.4	
8-YRK001.64	4/9/2002	M	13	11.96		8.74			24.2	
8-YRK001.64	4/9/2002	M	15	11.97		8.77			23.9	
8-YRK001.64	4/9/2002	B	16	11.96	7.7	8.85			24.3	
8-YRK001.64	5/15/2002	S	1	19.85	7.74	7.57			21.7	1.3
8-YRK001.64	5/15/2002	M	3	19.86	7.73	7.52			21.8	
8-YRK001.64	5/15/2002	M	5	19.86	7.71	7.55			21.8	
8-YRK001.64	5/15/2002	M	7	19.88	7.69	7.56			21.8	
8-YRK001.64	5/15/2002	M	9	19.91	7.64	7.53			21.5	
8-YRK001.64	5/15/2002	B	11	19.81	7.57	7.02			23.4	
8-YRK001.64	6/11/2002	S	1	23.69	7.94	6.61			23	1
8-YRK001.64	6/11/2002	M	3	23.69	7.93	6.52			23	
8-YRK001.64	6/11/2002	M	5	23.7	7.92	6.41			23	
8-YRK001.64	6/11/2002	M	7	23.57	7.88	5.96			23.1	
8-YRK001.64	6/11/2002	M	9	23.57	7.88	5.88			23.1	
8-YRK001.64	6/11/2002	M	11	23.37	7.85	5.48			23.2	
8-YRK001.64	6/11/2002	M	13	22.91	7.77	4.49			23.5	
8-YRK001.64	6/11/2002	B	14	22.88	7.76	4.37			23.6	
8-YRK001.64	7/9/2002	S	1	27.72	7.71	5			23.2	1.2
8-YRK001.64	7/9/2002	M	3	27.72	7.71	4.96			23.3	
8-YRK001.64	7/9/2002	M	5	27.63	7.7	4.96			23.2	
8-YRK001.64	7/9/2002	M	7	27.6	7.7	4.94			23.2	
8-YRK001.64	7/9/2002	M	9	27.28	7.65	3.91			23.9	
8-YRK001.64	7/9/2002	M	11	26.69	7.59	2.63			24.5	
8-YRK001.64	7/9/2002	M	13	25.73	7.34	0.94			26.4	
8-YRK001.64	7/9/2002	B	14	24.29	7.29	1.14			27.7	
8-YRK001.64	8/6/2002	S	1	29.37	8.09	6.56			23	1

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	8/6/2002	M	3	29.54	8.01	6.14			23.3	
8-YRK001.64	8/6/2002	M	5	29.6	7.87	5.05			23.7	
8-YRK001.64	8/6/2002	M	7	29.35	7.79	4.2			23.9	
8-YRK001.64	8/6/2002	M	9	28.8	7.7	3.25			24.2	
8-YRK001.64	8/6/2002	M	11	27.2	7.4	1.05			26	
8-YRK001.64	8/6/2002	M	13	26.23	7.33	0.43			27.3	
8-YRK001.64	8/6/2002	B	14	25.98	7.32	0.44			27.6	
8-YRK001.64	9/16/2002	S	1	25.05	7.93	6.36			24.1	1.9
8-YRK001.64	9/16/2002	M	3	25.04	7.94	6.26			24.1	
8-YRK001.64	9/16/2002	M	5	25.04	7.95	6.32			24.1	
8-YRK001.64	9/16/2002	M	7	25.01	7.96	6.18			24	
8-YRK001.64	9/16/2002	M	9	24.99	7.98	6.15			24	
8-YRK001.64	9/16/2002	M	11	24.53	7.99	5.07			24.2	
8-YRK001.64	9/16/2002	B	13	24.23	8	5.06			24.6	
8-YRK001.64	10/8/2002	S	1	24.28	7.45	5.72			24.8	0.9
8-YRK001.64	10/8/2002	M	3	24.28	7.44	5.78			24.8	
8-YRK001.64	10/8/2002	M	5	24.3	7.43	5.76			24.7	
8-YRK001.64	10/8/2002	M	7	24.29	7.42	5.76			24.7	
8-YRK001.64	10/8/2002	M	9	24.29	7.42	5.76			24.7	
8-YRK001.64	10/8/2002	M	11	24.29	7.41	5.79			24.6	
8-YRK001.64	10/8/2002	B	13	24.29	7.4	5.78			24.6	
8-YRK001.64	11/5/2002	S	1	13.92		8.35			23.9	1.8
8-YRK001.64	11/5/2002	M	3	13.89		8.4			23.9	
8-YRK001.64	11/5/2002	M	5	13.88		8.44			23.9	
8-YRK001.64	11/5/2002	M	7	13.85		8.5			23.9	
8-YRK001.64	11/5/2002	M	9	13.81		8.62			24	
8-YRK001.64	11/5/2002	M	11	13.75		8.68			24.1	
8-YRK001.64	11/5/2002	M	13	13.73		8.76			24.1	
8-YRK001.64	11/5/2002	B	14	13.74		8.92			24.1	
8-YRK001.64	12/3/2002	S	1	8.26		9.84			22.4	1.5
8-YRK001.64	12/3/2002	M	3	8.26		9.83			22.5	
8-YRK001.64	12/3/2002	M	5	8.28		9.89			22.4	
8-YRK001.64	12/3/2002	M	7	8.3		9.9			22.4	
8-YRK001.64	12/3/2002	M	9	8.3		9.93			22.4	
8-YRK001.64	12/3/2002	M	11	8.31		9.95			22.3	
8-YRK001.64	12/3/2002	B	13	8.31		10.2			22.3	
8-YRK001.64	1/13/2003	S	1	4.33		11.51			17.4	1.7
8-YRK001.64	1/13/2003	M	3	5		11.26			19.4	
8-YRK001.64	1/13/2003	M	5	4.99		11.19			19.8	
8-YRK001.64	1/13/2003	M	7	4.91		11.02			20.8	
8-YRK001.64	1/13/2003	M	9	4.77		10.84			21.2	
8-YRK001.64	1/13/2003	M	11	5.06		10.48			22.1	
8-YRK001.64	1/13/2003	B	13	5.32		10.05			24.4	
8-YRK001.64	2/3/2003	S	1	2.26	7.68	11.97			21.4	1.6
8-YRK001.64	2/3/2003	M	3	2.28	7.67	11.97			21.4	
8-YRK001.64	2/3/2003	M	5	2.26	7.67	11.92			21.4	
8-YRK001.64	2/3/2003	M	7	2.18	7.64	11.86			21.5	
8-YRK001.64	2/3/2003	M	9	1.94	7.61	11.59			21.7	
8-YRK001.64	2/3/2003	M	11	1.6	7.53	11.19			24.2	
8-YRK001.64	2/3/2003	M	13	1.58	7.47	11.24			24.7	
8-YRK001.64	2/3/2003	B	14	1.6	7.33	11.75			25.5	
8-YRK001.64	3/4/2003	S	1	5.13	7.88	12.23			15.5	1.2
8-YRK001.64	3/4/2003	M	3	5.07	7.82	12.06			16.2	
8-YRK001.64	3/4/2003	M	5	5.2	7.81	11.93			16.2	
8-YRK001.64	3/4/2003	M	7	5.13	7.8	11.79			16.4	
8-YRK001.64	3/4/2003	M	9	4.46	7.67	11.47			18	
8-YRK001.64	3/4/2003	M	11	4.29	7.65	11.55			18.7	
8-YRK001.64	3/4/2003	M	13	4.2	7.62	11.74			18.9	
8-YRK001.64	3/4/2003	B	14	4.23	7.78	11.58			18.9	
8-YRK001.64	4/2/2003	S	1	10.15	8.52	10.46			14.1	1
8-YRK001.64	4/2/2003	M	3	10.14	8.54	10.35			14.3	
8-YRK001.64	4/2/2003	M	5	10.07	8.53	10.05			14.9	
8-YRK001.64	4/2/2003	M	7	9.59	8.57	10.01			16.3	
8-YRK001.64	4/2/2003	M	9	9.41	8.59	10			16.6	
8-YRK001.64	4/2/2003	M	11	9.09	8.53	9.63			17.6	
8-YRK001.64	4/2/2003	B	13	8.95	8.47	9.46			18.3	
8-YRK001.64	5/14/2003	S	1	16.9	7.72	6.33			17.57	1.2
8-YRK001.64	5/14/2003	M	3	16.96	7.74	6.39			17.68	
8-YRK001.64	5/14/2003	M	5	16.84	7.78	6.2			18.5	
8-YRK001.64	5/14/2003	M	7	16.65	7.73	5.83			19.04	
8-YRK001.64	5/14/2003	M	9	15.9	7.72	5.62			20.21	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	5/14/2003	M	11	15.27	7.73	5.46			21.19	
8-YRK001.64	5/14/2003	M	13	13.79	7.69	5.07			24.12	
8-YRK001.64	5/14/2003	B	14	13.78	7.68	5.28			24.14	
8-YRK001.64	6/10/2003	S	1	20.84	8.01	7.34			14.88	1.5
8-YRK001.64	6/10/2003	M	3	20.71	7.94	6.8			15.27	
8-YRK001.64	6/10/2003	M	5	20.74	8.04	7.09			15.49	
8-YRK001.64	6/10/2003	M	7	20.62	8.04	6.67			16.01	
8-YRK001.64	6/10/2003	M	9	19.86	7.87	5.48			16.58	
8-YRK001.64	6/10/2003	M	11	19.1	7.63	4.16			17.5	
8-YRK001.64	6/10/2003	B	13	17.85	7.43	2.63			19.56	
8-YRK001.64	7/1/2003	S	1	26.5	8.27				14.7	1.3
8-YRK001.64	7/1/2003	M	3	26.49	8.22				14.78	
8-YRK001.64	7/1/2003	M	5	26.03	8.03				15.59	
8-YRK001.64	7/1/2003	M	7	24.45	7.52				18.32	
8-YRK001.64	7/1/2003	M	9	21.89	7.22				21.8	
8-YRK001.64	7/1/2003	M	11	20.61	7.17				23.69	
8-YRK001.64	7/1/2003	B	13	20.28	7.17				24.46	
8-YRK001.64	8/12/2003	S	1	26.06	7.66	4.99			17.82	1.1
8-YRK001.64	8/12/2003	M	3	26.06	7.65	4.5			18.39	
8-YRK001.64	8/12/2003	M	5	25.89	7.59	4.06			18.81	
8-YRK001.64	8/12/2003	M	7	25.88	7.59	4.01			18.84	
8-YRK001.64	8/12/2003	M	9	25.73	7.55	3.38			19.05	
8-YRK001.64	8/12/2003	M	11	24.79	7.49	2.1			20.81	
8-YRK001.64	8/12/2003	M	13	24.3	7.44	1.56			21.49	
8-YRK001.64	8/12/2003	B	14	24.17	7.44	1.52			21.65	
8-YRK001.64	9/16/2003	S	1	24.18	8.04	7.2			17.83	1.1
8-YRK001.64	9/16/2003	M	3	24.21	8.03	7.17			17.84	
8-YRK001.64	9/16/2003	M	5	24.23	8.03	7.06			17.86	
8-YRK001.64	9/16/2003	M	7	24.25	8.02	6.91			17.85	
8-YRK001.64	9/16/2003	M	9	24.43	7.88	5.72			18.01	
8-YRK001.64	9/16/2003	M	11	23.87	7.69	4.05			18.3	
8-YRK001.64	9/16/2003	B	13	23.66	7.58	3.31			18.84	
8-YRK001.64	10/7/2003	S	1	20.32	7.76	6.88			15.33	1.1
8-YRK001.64	10/7/2003	M	3	20.35	7.76	6.85			15.35	
8-YRK001.64	10/7/2003	M	5	20.39	7.74	6.67			15.44	
8-YRK001.64	10/7/2003	M	7	20.3	7.76	6.34			16.51	
8-YRK001.64	10/7/2003	M	9	20.26	7.76	6.15			17.2	
8-YRK001.64	10/7/2003	M	11	20.23	7.82	6.34			17.83	
8-YRK001.64	10/7/2003	M	13	20.31	7.82	6.16			18.32	
8-YRK001.64	10/7/2003	B	14	20.33	7.81	6.12			18.4	
8-YRK001.64	11/4/2003	S	1	17.44	7.95	8.83			16.66	2
8-YRK001.64	11/4/2003	M	3	17.38	8	9.19			17.08	
8-YRK001.64	11/4/2003	M	5	17.21	8.02	9.21			17.47	
8-YRK001.64	11/4/2003	M	7	17.12	8.03	9.04			17.59	
8-YRK001.64	11/4/2003	M	9	16.94	8.03	8.81			17.79	
8-YRK001.64	11/4/2003	M	11	16.85	8.02	8.84			17.85	
8-YRK001.64	11/4/2003	B	13	16.82	8.01	8.76			17.89	
8-YRK001.64	12/9/2003	S	1	7.52	7.76	10.72			15.82	1.5
8-YRK001.64	12/9/2003	M	3	7.71	7.77	10.67			16.14	
8-YRK001.64	12/9/2003	M	5	7.94	7.78	10.55			16.76	
8-YRK001.64	12/9/2003	M	7	7.59	7.81	10.64			17.31	
8-YRK001.64	12/9/2003	M	9	7.34	7.81	10.66			17.71	
8-YRK001.64	12/9/2003	M	11	7.29	7.8	10.48			17.92	
8-YRK001.64	12/9/2003	M	13	8.12	7.77	9.96			18.78	
8-YRK001.64	12/9/2003	B	14	8.26	7.76	9.87			19.09	
8-YRK001.64	1/13/2004	S	1	5.17	7.64	10.81			16.79	1.1
8-YRK001.64	1/13/2004	M	3	5.31	7.64	10.87			16.85	
8-YRK001.64	1/13/2004	M	5	5.42	7.67	10.48			17.07	
8-YRK001.64	1/13/2004	M	7	5.67	7.67	9.7			17.68	
8-YRK001.64	1/13/2004	M	9	6.45	7.63	8.51			19.77	
8-YRK001.64	1/13/2004	M	11	6.47	7.65	8.5			20.11	
8-YRK001.64	1/13/2004	B	13	6.56	7.63	8.64			20.31	
8-YRK001.64	2/4/2004	S	1	1.45	7.82	13.34			15.18	2
8-YRK001.64	2/4/2004	M	3	1.5	7.82	13.25			15.18	
8-YRK001.64	2/4/2004	M	5	1.6	7.81	12.76			15.25	
8-YRK001.64	2/4/2004	M	7	2.04	7.77	11.69			17.85	
8-YRK001.64	2/4/2004	M	9	2.55	7.74	10.91			20.84	
8-YRK001.64	2/4/2004	M	11	2.75	7.71	9.64			27.03	
8-YRK001.64	2/4/2004	M	13	2.85	7.72	9.68			28.05	
8-YRK001.64	2/4/2004	B	14	2.88	7.73	9.74			28.17	
8-YRK001.64	3/9/2004	S	1	8.29	7.97	12.1			17.81	1.3

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/9/2004	M	3	8.39	7.96	12.18			17.82	
8-YRK001.64	3/9/2004	M	5	8.6	7.95	12.18			17.9	
8-YRK001.64	3/9/2004	M	7	8.61	7.89	12.22			18.1	
8-YRK001.64	3/9/2004	M	9	8.43	7.83	11.65			18.37	
8-YRK001.64	3/9/2004	M	11	6.31	7.65	11.54			21.98	
8-YRK001.64	3/9/2004	B	13	5.45	7.57	11.6			23.64	
8-YRK001.64	4/7/2004	S	1	9	7.76	11.33			19.49	1
8-YRK001.64	4/7/2004	M	3	8.97	7.75	11.15			19.6	
8-YRK001.64	4/7/2004	M	5	8.94	7.73	11.08			19.66	
8-YRK001.64	4/7/2004	M	7	8.95	7.72	11.04			19.74	
8-YRK001.64	4/7/2004	M	9	8.92	7.73	10.89			19.99	
8-YRK001.64	4/7/2004	M	11	8.83	7.68	10.7			20.29	
8-YRK001.64	4/7/2004	B	13	8.81	7.67	10.69			20.47	
8-YRK001.64	5/4/2004	S	1	16.11	7.81	8.1			16.5	0.8
8-YRK001.64	5/4/2004	M	3	16.07	7.79	8.05			16.57	
8-YRK001.64	5/4/2004	M	5	15.92	7.67	7.13			16.88	
8-YRK001.64	5/4/2004	M	7	15.57	7.64	6.63			18.63	
8-YRK001.64	5/4/2004	M	9	15.44	7.52	6.23			20.97	
8-YRK001.64	5/4/2004	M	11	13.39	7.46	5.69			22.08	
8-YRK001.64	5/4/2004	M	13	13.42	7.46	5.79			22.09	
8-YRK001.64	5/4/2004	B	14	13.43	7.45	5.76			22.08	
8-YRK001.64	6/1/2004	S	1	23.5	8.37	9.25			17.08	1.3
8-YRK001.64	6/1/2004	M	3	23.52	8.33	8.95			17.26	
8-YRK001.64	6/1/2004	M	5	23	8.21	8.54			18.02	
8-YRK001.64	6/1/2004	M	7	21.87	7.96	6.68			19.61	
8-YRK001.64	6/1/2004	M	9	19.82	7.46	3.55			22.7	
8-YRK001.64	6/1/2004	M	11	16.34	7.39	3.17			25.72	
8-YRK001.64	6/1/2004	M	13	15.97	7.43	3.33			26.86	
8-YRK001.64	6/1/2004	B	14	15.78	7.4	3.27			27.04	
8-YRK001.64	7/6/2004	S	1	27.26	7.98	5.72			18.17	1
8-YRK001.64	7/6/2004	M	3	27.2	7.97	5.67			18.18	
8-YRK001.64	7/6/2004	M	5	27.13	7.97	5.71			18.19	
8-YRK001.64	7/6/2004	M	7	27.16	7.97	5.86			18.16	
8-YRK001.64	7/6/2004	M	9	27.13	7.97	5.62			18.17	
8-YRK001.64	7/6/2004	B	11	26.98	7.98	5.49			18.25	
8-YRK001.64	8/9/2004	S	1	25.83	7.9	6.73			15.28	1
8-YRK001.64	8/9/2004	M	3	25.98	7.84	6.11			17.27	
8-YRK001.64	8/9/2004	M	5	25.6	7.92	6.54			18.28	
8-YRK001.64	8/9/2004	M	7	25.56	7.92	6.59			18.46	
8-YRK001.64	8/9/2004	M	9	25.34	8.02	6.79			18.85	
8-YRK001.64	8/9/2004	M	11	25.41	7.96	5.85			19.48	
8-YRK001.64	8/9/2004	B	13	25.43	7.9	5.46			19.83	
8-YRK001.64	9/7/2004	S	1	25.61	7.75	6.6			15.35	1
8-YRK001.64	9/7/2004	M	3	25.62	7.75	6.48			15.36	
8-YRK001.64	9/7/2004	M	5	25.66	7.76	6.33			15.92	
8-YRK001.64	9/7/2004	M	7	25.69	7.77	6.06			16.58	
8-YRK001.64	9/7/2004	M	9	25.61	7.81	6.39			17.06	
8-YRK001.64	9/7/2004	M	11	25.61	7.79	6.02			17.46	
8-YRK001.64	9/7/2004	M	13	25.62	7.75	5.52			17.62	
8-YRK001.64	9/7/2004	B	14	25.56	7.75	5.52			17.76	
8-YRK001.64	10/13/2004	S	1	20.21	8.04	7.83			15	1.1
8-YRK001.64	10/13/2004	M	3	20.37	8.01	7.45			15.48	
8-YRK001.64	10/13/2004	M	5	20.33	8.05	7.4			16.07	
8-YRK001.64	10/13/2004	M	7	20.4	8.02	7.02			16.53	
8-YRK001.64	10/13/2004	M	9	20.65	7.91	5.75			18.33	
8-YRK001.64	10/13/2004	M	11	21.06	7.83	4.8			21.26	
8-YRK001.64	10/13/2004	B	13	21.15	7.84	4.8			23	
8-YRK001.64	11/2/2004	S	1	17.03	7.88	8.91			16.43	1.6
8-YRK001.64	11/2/2004	M	3	17.09	7.87	8.64			16.73	
8-YRK001.64	11/2/2004	M	5	17.08	7.88	8.46			16.92	
8-YRK001.64	11/2/2004	M	7	17.02	7.87	8.29			17.05	
8-YRK001.64	11/2/2004	M	9	16.86	7.9	7.97			17.65	
8-YRK001.64	11/2/2004	M	11	16.66	7.92	7.44			18.72	
8-YRK001.64	11/2/2004	M	13	16.64	7.87	7.07			19.14	
8-YRK001.64	11/2/2004	B	14	16.55	7.88	7.09			19.92	
8-YRK001.64	12/7/2004	S	1	11.14	7.86	10.77			15.09	3.3
8-YRK001.64	12/7/2004	M	3	10.84	7.96	11.09			16.7	
8-YRK001.64	12/7/2004	M	5	10.8	7.97	11.12			16.98	
8-YRK001.64	12/7/2004	M	7	10.8	7.98	11.06			17.42	
8-YRK001.64	12/7/2004	M	9	10.92	7.97	10.92			17.8	
8-YRK001.64	12/7/2004	M	11	10.96	7.93	10.51			17.94	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	12/7/2004	B	13	11.04	7.9	10.5			18.21	
8-YRK001.64	1/11/2005	S	1	7	8.22	13.38			15.23	2
8-YRK001.64	1/11/2005	M	3	7.16	8.21	13.37			15.38	
8-YRK001.64	1/11/2005	M	5	7.64	8.17	13.14			16.09	
8-YRK001.64	1/11/2005	M	7	7.74	8.12	12.89			16.59	
8-YRK001.64	1/11/2005	M	9	7.67	8.08	12.38			16.84	
8-YRK001.64	1/11/2005	M	11	7.43	7.99	11.88			17.73	
8-YRK001.64	1/11/2005	M	13	7.21	7.9	11.43			18.94	
8-YRK001.64	1/11/2005	B	14	6.95	7.78	10.78			21.05	
8-YRK001.64	2/8/2005	S	1	3.12	7.75	14.08			15.07	1.3
8-YRK001.64	2/8/2005	M	3	3.21	7.74	14.01			15.15	
8-YRK001.64	2/8/2005	M	5	3.19	7.73	13.99			15.25	
8-YRK001.64	2/8/2005	M	7	3.22	7.7	13.77			15.53	
8-YRK001.64	2/8/2005	M	9	3.34	7.67	13.37			15.89	
8-YRK001.64	2/8/2005	M	11	3.18	7.59	12.91			17.65	
8-YRK001.64	2/8/2005	M	13	3	7.58	12.91			19.27	
8-YRK001.64	2/8/2005	B	14	2.67	7.57	12.78			20.73	
8-YRK001.64	3/15/2005	S	1	6.39	7.89	12.72			16.92	1.3
8-YRK001.64	3/15/2005	M	3	6.38	7.87	12.71			16.95	
8-YRK001.64	3/15/2005	M	5	6.38	7.85	12.76			16.98	
8-YRK001.64	3/15/2005	M	7	6.38	7.84	12.64			16.99	
8-YRK001.64	3/15/2005	M	9	6.38	7.83	12.73			17	
8-YRK001.64	3/15/2005	M	11	6.38	7.82	13.97			17.02	
8-YRK001.64	3/15/2005	B	13	6.38	7.77	12.33			17.05	
8-YRK001.64	4/5/2005	S	1	10.9	7.87	11.15			14.18	1.2
8-YRK001.64	4/5/2005	M	3	10.87	7.9	11.13			15.03	
8-YRK001.64	4/5/2005	M	5	10.65	7.95	11.24			15.51	
8-YRK001.64	4/5/2005	M	7	10.6	7.96	11.26			15.87	
8-YRK001.64	4/5/2005	M	9	10.18	8	11.34			16.4	
8-YRK001.64	4/5/2005	M	11	9.85	7.98	11.1			16.91	
8-YRK001.64	4/5/2005	B	13	9.63	7.96	11.04			17.24	
8-YRK001.64	5/10/2005	S	1	15.81	7.95	10.41			16.23	1
8-YRK001.64	5/10/2005	M	3	15.8	7.89	10.15			16.24	
8-YRK001.64	5/10/2005	M	5	15.77	7.88	10.1			16.25	
8-YRK001.64	5/10/2005	M	7	15.56	7.84	9.79			16.3	
8-YRK001.64	5/10/2005	M	9	15.43	7.82	9.58			16.4	
8-YRK001.64	5/10/2005	M	11	15.34	7.81	9.34			16.41	
8-YRK001.64	5/10/2005	B	12	15.25	7.8	9.25			16.48	
8-YRK001.64	6/7/2005	S	1	22.55	8.08	8.31			15.68	1.2
8-YRK001.64	6/7/2005	M	3	22.55	8.09	8.29			15.68	
8-YRK001.64	6/7/2005	M	5	22.55	8.07	8.19			15.68	
8-YRK001.64	6/7/2005	M	7	22.25	7.98	7.52			15.82	
8-YRK001.64	6/7/2005	M	9	20.54	7.59	5.86			16.04	
8-YRK001.64	6/7/2005	M	11	19.78	7.54	4.95			16.18	
8-YRK001.64	6/7/2005	M	13	18.35	7.46	3.51			19.25	
8-YRK001.64	6/7/2005	B	14	18.35	7.45	3.55			19.28	
8-YRK001.64	7/5/2005	S	1	26.35	8.22	7.16			18.78	1.6
8-YRK001.64	7/5/2005	M	3	26.33	8.2	7.01			18.78	
8-YRK001.64	7/5/2005	M	5	26.3	8.12	6.33			18.82	
8-YRK001.64	7/5/2005	M	7	26.25	8.06	5.88			18.87	
8-YRK001.64	7/5/2005	M	9	26.04	8.01	5.4			18.97	
8-YRK001.64	7/5/2005	M	11	25.4	7.75	3.65			19.55	
8-YRK001.64	7/5/2005	B	13	24.85	7.62	2.88			20.03	
8-YRK001.64	8/17/2005	S	1	29.38	7.82	5.43			20.03	1
8-YRK001.64	8/17/2005	M	3	29.39	7.82	5.38			20.04	
8-YRK001.64	8/17/2005	M	5	29.39	7.82	5.28			20.02	
8-YRK001.64	8/17/2005	M	7	29.39	7.81	5			20.06	
8-YRK001.64	8/17/2005	M	9	27.91	7.57	2.44			21.53	
8-YRK001.64	8/17/2005	M	11	26.94	7.43	1.09			22.81	
8-YRK001.64	8/17/2005	B	12	26.7	7.41	1.01			23.02	
8-YRK001.64	9/8/2005	S	1	25.95	7.87	6.34			21.19	0.7
8-YRK001.64	9/8/2005	M	3	25.96	7.86	6.33			21.18	
8-YRK001.64	9/8/2005	M	5	25.96	7.86	6.3			21.17	
8-YRK001.64	9/8/2005	M	7	25.96	7.86	6.34			21.19	
8-YRK001.64	9/8/2005	M	9	25.96	7.86	6.3			21.19	
8-YRK001.64	9/8/2005	M	11	25.97	7.85	6.31			21.17	
8-YRK001.64	9/8/2005	B	13	25.97	7.85	6.34			21.19	
8-YRK001.64	10/6/2005	S	1	24.51	7.43	4.53			21.46	1
8-YRK001.64	10/6/2005	M	3	24.52	7.42	4.45			21.47	
8-YRK001.64	10/6/2005	M	5	24.51	7.5	4.24			21.5	
8-YRK001.64	10/6/2005	M	7	24.5	7.41	4.24			21.51	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	10/6/2005	M	9	24.49	7.42	4.18			21.51	
8-YRK001.64	10/6/2005	M	11	24.48	7.43	4.14			21.52	
8-YRK001.64	10/6/2005	B	13	24.48	7.47	4.19			21.5	
8-YRK001.64	11/7/2005	S	1	15.27	7.76	10.06			20.76	1.5
8-YRK001.64	11/7/2005	M	3	15.38	7.77	10.03			20.85	
8-YRK001.64	11/7/2005	M	5	15.41	7.78	10.19			20.87	
8-YRK001.64	11/7/2005	M	7	15.49	7.79	10.24			20.9	
8-YRK001.64	11/7/2005	M	9	15.5	7.8	10.23			21.26	
8-YRK001.64	11/7/2005	M	11	15.33	7.83	10.24			21.49	
8-YRK001.64	11/7/2005	B	13	15.28	7.86	9.97			21.66	
8-YRK001.64	12/8/2005	S	1	8.66	7.98	9.56			19.72	1.7
8-YRK001.64	12/8/2005	M	3	8.7	7.98	9.52			19.76	
8-YRK001.64	12/8/2005	M	5	8.86	7.98	9.39			19.81	
8-YRK001.64	12/8/2005	M	7	8.93	7.98	9.37			19.89	
8-YRK001.64	12/8/2005	M	9	9.17	7.98	9.2			20.55	
8-YRK001.64	12/8/2005	M	11	8.96	7.98	9.24			20.79	
8-YRK001.64	12/8/2005	B	13	8.84	7.98	9.34			20.98	
8-YRK001.64	1/5/2006	S	1	6.84	8.01	10.47			19.85	1.6
8-YRK001.64	1/5/2006	M	3	6.85	8.01	10.39			19.86	
8-YRK001.64	1/5/2006	M	5	6.86	8.01	10.36			19.86	
8-YRK001.64	1/5/2006	M	7	6.87	8.01	10.32			19.89	
8-YRK001.64	1/5/2006	M	9	6.89	8.01	10.3			19.9	
8-YRK001.64	1/5/2006	M	11	6.89	8.01	10.3			19.89	
8-YRK001.64	1/5/2006	B	13	6.9	8.01	10.43			19.89	
8-YRK001.64	3/6/2006	S	1	6.5	7.8	12.8			17.07	1.1
8-YRK001.64	3/6/2006	M	3	6.6	7.8	12.8			17.18	
8-YRK001.64	3/6/2006	M	5	6.6	7.8	12.8			17.17	
8-YRK001.64	3/6/2006	M	7	6.6	7.8	12.8			17.19	
8-YRK001.64	3/6/2006	M	9	6.5	7.8	12.8			17.53	
8-YRK001.64	3/6/2006	M	11	6.3	7.8	13			17.71	
8-YRK001.64	3/6/2006	B	13	6	7.8	13.4			17.98	
8-YRK001.64	4/6/2006	S	1	12.1	7.6	10.5			18.7	1.6
8-YRK001.64	4/6/2006	M	3	12.2	7.6	10.4			18.8	
8-YRK001.64	4/6/2006	M	5	12.2	7.6	10.4			18.9	
8-YRK001.64	4/6/2006	M	7	12.1	7.6	10.3			19	
8-YRK001.64	4/6/2006	M	9	11.9	7.6	9.8			19.3	
8-YRK001.64	4/6/2006	M	11	10.8	7.6	9.3			21.1	
8-YRK001.64	4/6/2006	M	13	10.4	7.5	9.2			22.1	
8-YRK001.64	4/6/2006	M	15	10.3	7.5	9.1			22.5	
8-YRK001.64	4/6/2006	M	17	10.3	7.5	9.1			22.7	
8-YRK001.64	4/6/2006	B	18	10.3	7.5	9.2			22.7	
8-YRK001.64	5/2/2006	S	1	16.1	7.6	8.7			18	0.9
8-YRK001.64	5/2/2006	M	3	16.1	7.6	8.8			18	
8-YRK001.64	5/2/2006	M	5	16.1	7.6	8.8			18	
8-YRK001.64	5/2/2006	M	7	16.1	7.6	8.7			18	
8-YRK001.64	5/2/2006	M	9	16.1	7.6	8.7			18	
8-YRK001.64	5/2/2006	B	11	16.1	7.6	8.7			17.9	
8-YRK001.64	6/13/2006	S	1	22	7.7	7.3			20.2	0.8
8-YRK001.64	6/13/2006	M	3	22.2	7.7	7			20.4	
8-YRK001.64	6/13/2006	M	5	22.1	7.6	6.8			20.4	
8-YRK001.64	6/13/2006	M	7	21.9	7.6	6.7			20.5	
8-YRK001.64	6/13/2006	M	9	22	7.6	6.2			20.6	
8-YRK001.64	6/13/2006	B	11	22.2	7.5	5.9			20.7	
8-YRK001.64	7/10/2006	S	1	25.5	7.8	7.6			19.2	1.2
8-YRK001.64	7/10/2006	M	3	25.5	7.8	7.5			19.2	
8-YRK001.64	7/10/2006	M	5	25.5	7.8	7.3			19.3	
8-YRK001.64	7/10/2006	M	7	25.6	7.7	6.6			19.5	
8-YRK001.64	7/10/2006	M	9	25.3	7.5	4.8			20.6	
8-YRK001.64	7/10/2006	B	10	25	7.4	4.3			21.2	
8-YRK001.64	8/7/2006	S	1	29	8.1	7.4			17.7	1.7
8-YRK001.64	8/7/2006	M	3	29.2	8.1	7.3			17.8	
8-YRK001.64	8/7/2006	M	5	29.8	8	6.6			19.7	
8-YRK001.64	8/7/2006	M	7	28.9	7.9	5.9			20.3	
8-YRK001.64	8/7/2006	M	9	26.5	7.6	3.6			23	
8-YRK001.64	8/7/2006	M	11	25.2	7.4	2.6			25	
8-YRK001.64	8/7/2006	B	12	23.4	7.3	1.8			26.8	
8-YRK001.64	9/18/2006	S	1	23.6	7.7	8.3			19.1	1.2
8-YRK001.64	9/18/2006	M	3	23.6	7.7	7.7			19.1	
8-YRK001.64	9/18/2006	M	5	23.7	7.7	8.4			19.7	
8-YRK001.64	9/18/2006	M	7	23.5	7.7	8.3			20	
8-YRK001.64	9/18/2006	M	9	23.4	7.7	7.9			20.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	9/18/2006	M	11	23.3	7.7	6.7			20.7	
8-YRK001.64	9/18/2006	B	12	23.2	7.7	6.4			21	
8-YRK001.64	10/10/2006	S	1	20	7.7	6.6			18.5	0.8
8-YRK001.64	10/10/2006	M	3	20.1	7.7	6.7			18.5	
8-YRK001.64	10/10/2006	M	5	20	7.7	6.6			18.7	
8-YRK001.64	10/10/2006	M	7	20.1	7.7	6.6			18.9	
8-YRK001.64	10/10/2006	M	9	20.1	7.7	6.6			19	
8-YRK001.64	10/10/2006	M	11	20.2	7.7	6.7			19.2	
8-YRK001.64	10/10/2006	B	13	20.2	7.7	6.7			19.3	
8-YRK001.64	11/6/2006	S	1	13	7.9	8.6			18.8	1.8
8-YRK001.64	11/6/2006	M	3	13	7.9	8.6			18.8	
8-YRK001.64	11/6/2006	M	5	13.1	7.9	8.5			18.9	
8-YRK001.64	11/6/2006	M	7	13.1	7.9	8.5			18.9	
8-YRK001.64	11/6/2006	M	9	13.2	7.9	8.5			19.1	
8-YRK001.64	11/6/2006	M	11	13.1	7.9	8.6			19.6	
8-YRK001.64	11/6/2006	B	12	13.1	7.9	8.6			19.6	
8-YRK001.64	12/5/2006	S	1	11	7.8	9.1			16.1	1.2
8-YRK001.64	12/5/2006	M	3	11	7.8	9.4			16.1	
8-YRK001.64	12/5/2006	M	5	11.1	7.8	9			16.1	
8-YRK001.64	12/5/2006	M	7	11.2	7.8	9			16.2	
8-YRK001.64	12/5/2006	M	9	11.2	7.8	9.1			16.3	
8-YRK001.64	12/5/2006	M	11	11.5	7.9	9			17.2	
8-YRK001.64	12/5/2006	B	13	11.5	7.9	9			17.2	
8-YRK001.64	2/12/2007	S	1	2.9	8	12.3			17	1.5
8-YRK001.64	2/12/2007	M	3	3	7.9	12			17.2	
8-YRK001.64	2/12/2007	M	5	3.2	7.9	11.7			18.2	
8-YRK001.64	2/12/2007	M	7	3.2	7.9	11.3			18.4	
8-YRK001.64	2/12/2007	M	9	3.7	7.9	10.9			19	
8-YRK001.64	2/12/2007	B	11	4.6	7.8	9.7			22.8	
8-YRK001.64	3/12/2007	S	1	7.8	8	10.7			17.5	1.2
8-YRK001.64	3/12/2007	M	3	7.8	7.9	10.7			17.7	
8-YRK001.64	3/12/2007	M	5	7.4	7.9	10.8			18	
8-YRK001.64	3/12/2007	M	7	7.4	7.9	10.7			18	
8-YRK001.64	3/12/2007	M	9	7.3	7.9	10.6			18.1	
8-YRK001.64	3/12/2007	B	11	7	7.9	10.5			18.3	
8-YRK001.64	4/23/2007	S	1	13.9	8	10.4			14	1.2
8-YRK001.64	4/23/2007	M	2	13.9	8	10.3			14.1	
8-YRK001.64	4/23/2007	M	3	13.8	8	10.2			14.4	
8-YRK001.64	4/23/2007	M	4	13.7	8	10			14.5	
8-YRK001.64	4/23/2007	M	5	13.4	8	9.8			14.5	
8-YRK001.64	4/23/2007	M	6	13	7.9	9.5			14.6	
8-YRK001.64	4/23/2007	M	7	12.9	7.8	9.3			15	
8-YRK001.64	4/23/2007	M	8	12.8	7.8	9.2			15	
8-YRK001.64	4/23/2007	M	9	12.5	7.8	9.2			15.2	
8-YRK001.64	4/23/2007	M	10	12.4	7.8	9.1			15.4	
8-YRK001.64	4/23/2007	B	11	12.2	7.8	9.1			15.5	
8-YRK001.64	5/14/2007	S	1	18	8	8			14.6	1.7
8-YRK001.64	5/14/2007	M	2	18	8	8			14.6	
8-YRK001.64	5/14/2007	M	3	18	8	7.9			14.6	
8-YRK001.64	5/14/2007	M	4	18	8	7.9			14.6	
8-YRK001.64	5/14/2007	M	5	18	8	7.9			14.6	
8-YRK001.64	5/14/2007	M	6	18	8	7.8			14.6	
8-YRK001.64	5/14/2007	M	7	18.1	7.9	7.6			14.6	
8-YRK001.64	5/14/2007	M	8	18.6	7.8	7.2			15.1	
8-YRK001.64	5/14/2007	M	9	18.5	7.8	7.2			15.2	
8-YRK001.64	5/14/2007	M	10	18	7.8	7.1			15.5	
8-YRK001.64	5/14/2007	M	11	17.6	7.8	6.7			16.1	
8-YRK001.64	5/14/2007	B	12	15.7	7.4	5.1			21.2	
8-YRK001.64	6/11/2007	S	1	24	7.9	6.6			19.1	1.1
8-YRK001.64	6/11/2007	M	2	24	7.9	6.5			19.1	
8-YRK001.64	6/11/2007	M	3	24	7.9	6.5			19.1	
8-YRK001.64	6/11/2007	M	4	24	7.9	6.4			19.1	
8-YRK001.64	6/11/2007	M	5	24	7.9	6.2			19.1	
8-YRK001.64	6/11/2007	M	6	24	7.8	5.9			19.2	
8-YRK001.64	6/11/2007	M	7	23.9	7.8	5.6			19.2	
8-YRK001.64	6/11/2007	M	8	23.7	7.7	5.4			19.3	
8-YRK001.64	6/11/2007	M	9	23.2	7.6	4.5			19.7	
8-YRK001.64	6/11/2007	M	10	21.2	7.4	3.4			21.5	
8-YRK001.64	6/11/2007	M	11	21	7.4	3.2			21.6	
8-YRK001.64	6/11/2007	B	12	19.9	7.4	2.8			22.7	
8-YRK001.64	7/9/2007	S	1	26.5	7.9	6.5		6.9	20.9	1.1

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/9/2007	M	2	26.5	7.9	6.5			6.9	20.9
8-YRK001.64	7/9/2007	M	3	26.5	7.9	6.4			6.8	20.9
8-YRK001.64	7/9/2007	M	4	26.6	7.9	6.4			6.8	21
8-YRK001.64	7/9/2007	M	5	26.6	7.9	6.3			6.8	21
8-YRK001.64	7/9/2007	M	6	26.6	7.9	6.2			6.7	21.1
8-YRK001.64	7/9/2007	M	7	26.3	7.8	5.2			5.4	21.1
8-YRK001.64	7/9/2007	M	8	25.3	7.7	4.3			4.7	21.9
8-YRK001.64	7/9/2007	M	9	24.8	7.6	3.8			4	22.4
8-YRK001.64	7/9/2007	M	10	24.5	7.6	3.7			3.8	22.5
8-YRK001.64	7/9/2007	B	11	24.5	7.6	3.8			3.7	22.6
8-YRK001.64	8/6/2007	S	1	28.1	8	5.6			6.1	22.1
8-YRK001.64	8/6/2007	M	2	28.1	8	5.5			6	22.1
8-YRK001.64	8/6/2007	M	3	28.2	7.9	5.4			5.8	22.1
8-YRK001.64	8/6/2007	M	4	28.2	7.9	5.4			5.8	22.2
8-YRK001.64	8/6/2007	M	5	28.2	7.9	5.3			5.6	22.2
8-YRK001.64	8/6/2007	M	6	28.2	7.9	5.2			5.5	22.2
8-YRK001.64	8/6/2007	M	7	28	7.8	4.2			4.7	22.3
8-YRK001.64	8/6/2007	M	8	27.3	7.7	3.7			4	22.7
8-YRK001.64	8/6/2007	M	9	27.2	7.8	3.8			4.1	22.8
8-YRK001.64	8/6/2007	B	10	27.3	7.8	3.9			4.2	22.8
8-YRK001.64	9/11/2007	S	1	27.4	7.9	6.5			7.1	22.4
8-YRK001.64	9/11/2007	M	2	27.4	7.9	6.5			7.1	22.4
8-YRK001.64	9/11/2007	M	3	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	4	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	5	27.4	7.9	6.5			7	22.4
8-YRK001.64	9/11/2007	M	6	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	7	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	8	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	9	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	M	10	27.4	7.9	6.4			7	22.4
8-YRK001.64	9/11/2007	B	11	27.4	7.8	6.4			7	22.4
8-YRK001.64	10/9/2007	S	1	24.7	7.9	7.5			22.9	1
8-YRK001.64	10/9/2007	M	2	24.7	7.9	7.3			22.9	
8-YRK001.64	10/9/2007	M	3	24.8	7.9	7.2			23	
8-YRK001.64	10/9/2007	M	4	24.8	7.9	7			23	
8-YRK001.64	10/9/2007	M	5	24.8	7.9	6.9			23.1	
8-YRK001.64	10/9/2007	M	6	24.8	7.8	6.9			23.1	
8-YRK001.64	10/9/2007	M	7	24.8	7.8	6.8			23.1	
8-YRK001.64	10/9/2007	M	8	24.8	7.8	6.7			23.1	
8-YRK001.64	10/9/2007	M	9	24.6	7.8	5.9			23.2	
8-YRK001.64	10/9/2007	M	10	24.4	7.7	5.3			23.5	
8-YRK001.64	10/9/2007	M	11	24.1	7.6	4.8			23.9	
8-YRK001.64	10/9/2007	B	12	24.1	7.6	4.8			24	
8-YRK001.64	11/5/2007	S	1	17.1	7.7	7.1			22.5	1.4
8-YRK001.64	11/5/2007	M	2	17.2	7.7	7.2			22.6	
8-YRK001.64	11/5/2007	M	3	17.4	7.7	7.2			22.7	
8-YRK001.64	11/5/2007	M	4	17.4	7.7	7.2			22.7	
8-YRK001.64	11/5/2007	M	5	17.4	7.7	7.3			22.8	
8-YRK001.64	11/5/2007	M	6	17	7.8	7.5			22.9	
8-YRK001.64	11/5/2007	M	7	17.1	7.8	7.5			23.2	
8-YRK001.64	11/5/2007	M	8	17.3	7.8	7.3			23.3	
8-YRK001.64	11/5/2007	M	9	17.3	7.8	7.3			23.4	
8-YRK001.64	11/5/2007	M	10	17.3	7.8	7.2			23.7	
8-YRK001.64	11/5/2007	M	11	17.4	7.8	7.1			24.1	
8-YRK001.64	11/5/2007	M	12	17.4	7.8	6.9			24.2	
8-YRK001.64	11/5/2007	B	13	17.6	7.8	6.7			24.8	
8-YRK001.64	12/5/2007	S	1	9.6	7.8	9.1			22.9	2.1
8-YRK001.64	12/5/2007	M	2	9.6	7.8	9.1			23	
8-YRK001.64	12/5/2007	M	3	9.5	7.8	9.1			23.1	
8-YRK001.64	12/5/2007	M	4	9.6	7.8	9.1			23.1	
8-YRK001.64	12/5/2007	M	5	9.5	7.8	9.1			23.2	
8-YRK001.64	12/5/2007	M	6	9.6	7.8	9.1			23.2	
8-YRK001.64	12/5/2007	M	7	9.5	7.7	9.1			23.3	
8-YRK001.64	12/5/2007	M	8	9.5	7.7	9.1			23.3	
8-YRK001.64	12/5/2007	M	9	9.4	7.7	9.1			23.3	
8-YRK001.64	12/5/2007	M	10	9.5	7.7	9.1			23.3	
8-YRK001.64	12/5/2007	M	11	9.6	7.7	9.1			23.4	
8-YRK001.64	12/5/2007	M	12	9.6	7.7	9.1			23.4	
8-YRK001.64	12/5/2007	B	13	9.7	7.7	9.3			23.4	
8-YRK001.64	1/29/2008	S	1	5	7.8	11.3			21.8	1.7
8-YRK001.64	1/29/2008	M	2	5	7.8	11.4			21.8	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	1/29/2008	M	3	5	7.8	11.2			21.8	
8-YRK001.64	1/29/2008	M	4	5	7.8	11.1			21.9	
8-YRK001.64	1/29/2008	M	5	5	7.8	11.1			21.9	
8-YRK001.64	1/29/2008	M	6	5	7.8	11.2			22.1	
8-YRK001.64	1/29/2008	M	7	5	7.8	11.1			22	
8-YRK001.64	1/29/2008	M	8	5	7.7	11			22.3	
8-YRK001.64	1/29/2008	M	9	5	7.7	10.8			22.2	
8-YRK001.64	1/29/2008	M	10	5	7.7	10.7			23.3	
8-YRK001.64	1/29/2008	M	11	5	7.6	10.4			23.7	
8-YRK001.64	1/29/2008	B	12	5.1	7.6	10.3			24	
8-YRK001.64	2/26/2008	S	1	7.6	7.7	10		9.9	19.8	1.9
8-YRK001.64	2/26/2008	M	2	7.6	7.7	10		9.9	19.8	
8-YRK001.64	2/26/2008	M	3	7.6	7.7	10		9.9	19.8	
8-YRK001.64	2/26/2008	M	4	7.6	7.6	10		9.9	19.9	
8-YRK001.64	2/26/2008	M	5	7.6	7.6	10		9.9	19.9	
8-YRK001.64	2/26/2008	M	6	7.5	7.6	10		9.8	20.2	
8-YRK001.64	2/26/2008	M	7	7.5	7.6	10		9.8	20.2	
8-YRK001.64	2/26/2008	M	8	7.5	7.6	9.9		9.8	20.2	
8-YRK001.64	2/26/2008	M	9	7.5	7.6	9.9		9.8	20.2	
8-YRK001.64	2/26/2008	M	10	7.5	7.6	10		9.7	20.2	
8-YRK001.64	2/26/2008	B	11	7.5	7.6	10		9.7	20.3	
8-YRK001.64	3/25/2008	S	1	11	7.7	9.4			18.4	1.7
8-YRK001.64	3/25/2008	M	2	11	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	3	11	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	4	11	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	5	11.1	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	6	11.1	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	7	11.1	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	8	11.1	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	9	11.1	7.7	9.4			18.4	
8-YRK001.64	3/25/2008	M	10	11.1	7.7	9.5			18.4	
8-YRK001.64	3/25/2008	B	11	11.1	7.7	9.5			18.4	
8-YRK001.64	4/23/2008	S	1	15.5	7.6	7.8			16.8	1.1
8-YRK001.64	4/23/2008	M	2	15.5	7.6	7.8			16.9	
8-YRK001.64	4/23/2008	M	3	15.5	7.6	7.7			16.9	
8-YRK001.64	4/23/2008	M	4	15.5	7.6	7.8			16.9	
8-YRK001.64	4/23/2008	M	5	15.5	7.6	7.7			16.9	
8-YRK001.64	4/23/2008	M	6	15.5	7.6	7.8			16.9	
8-YRK001.64	4/23/2008	M	7	15.5	7.6	7.8			16.9	
8-YRK001.64	4/23/2008	M	8	15.5	7.6	7.7			16.9	
8-YRK001.64	4/23/2008	M	9	15.5	7.6	7.7			16.9	
8-YRK001.64	4/23/2008	M	10	15.5	7.6	7.8			16.9	
8-YRK001.64	4/23/2008	B	11	15.5	7.6	7.8			16.9	
8-YRK001.64	5/29/2008	S	1	19.7	7.9	7.5			15.1	1.5
8-YRK001.64	5/29/2008	M	2	19.7	7.9	7.5			15.1	
8-YRK001.64	5/29/2008	M	3	19.8	7.9	7.4			15.1	
8-YRK001.64	5/29/2008	M	4	20	7.8	7.2			15.3	
8-YRK001.64	5/29/2008	M	5	19.6	7.9	7.3			15.5	
8-YRK001.64	5/29/2008	M	6	19.4	7.8	6.7			15.9	
8-YRK001.64	5/29/2008	M	7	19.1	7.7	5.9			16.4	
8-YRK001.64	5/29/2008	M	8	19	7.5	5.1			16.7	
8-YRK001.64	5/29/2008	M	9	18.9	7.4	4.7			17	
8-YRK001.64	5/29/2008	M	10	18.6	7.4	4.2			17.5	
8-YRK001.64	5/29/2008	M	11	17	7.2	2.8			21.1	
8-YRK001.64	5/29/2008	M	12	16.9	7.2	3			21.7	
8-YRK001.64	5/29/2008	B	13	16.7	7.2	2.9			22.2	
8-YRK001.64	6/24/2008	S	1	25.3	8				17.6	1.4
8-YRK001.64	6/24/2008	M	2	25.4	7.9				17.6	
8-YRK001.64	6/24/2008	M	3	25.3	7.9				17.8	
8-YRK001.64	6/24/2008	M	4	25.2	7.8				18.1	
8-YRK001.64	6/24/2008	M	5	25.2	7.7				18.1	
8-YRK001.64	6/24/2008	M	6	24.9	7.6				18.4	
8-YRK001.64	6/24/2008	M	7	24.4	7.5				19.1	
8-YRK001.64	6/24/2008	M	8	23.5	7.3				19.6	
8-YRK001.64	6/24/2008	M	9	22.9	7.2				20.5	
8-YRK001.64	6/24/2008	M	10	22.4	7.2				21.2	
8-YRK001.64	6/24/2008	M	11	22.4	7.2				21.3	
8-YRK001.64	6/24/2008	M	12	22.2	7.1				21.5	
8-YRK001.64	6/24/2008	B	13	22.1	7.1				21.5	
8-YRK001.64	7/22/2008	S	1	28.6	8.1	7.2			19.7	1.3
8-YRK001.64	7/22/2008	M	2	28.6	8.1	7			19.7	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/22/2008	M	3	28.3	7.9	6.2			20.3	
8-YRK001.64	7/22/2008	M	4	28.1	7.8	5.7			20.3	
8-YRK001.64	7/22/2008	M	5	27.9	7.8	5.4			20.5	
8-YRK001.64	7/22/2008	M	6	27.9	7.8	4.9			20.6	
8-YRK001.64	7/22/2008	M	7	27.2	7.7	4.2			20.8	
8-YRK001.64	7/22/2008	M	8	26.9	7.6	3.9			21.2	
8-YRK001.64	7/22/2008	M	9	26.8	7.6	3.6			21.3	
8-YRK001.64	7/22/2008	M	10	25.9	7.5	2.7			22.2	
8-YRK001.64	7/22/2008	M	11	25.5	7.4	2.5			22.5	
8-YRK001.64	7/22/2008	M	12	25.1	7.4	2.2			22.9	
8-YRK001.64	7/22/2008	B	13	24.9	7.3	2.1			23.1	
8-YRK001.64	9/2/2008	S	1	25.7	7.6	5.3			20.6	0.9
8-YRK001.64	9/2/2008	M	2	25.7	7.6	5.4			20.6	
8-YRK001.64	9/2/2008	M	3	25.7	7.6	5.4			20.6	
8-YRK001.64	9/2/2008	M	4	25.7	7.6	5.5			20.6	
8-YRK001.64	9/2/2008	M	5	25.7	7.6	5.4			20.6	
8-YRK001.64	9/2/2008	M	6	25.7	7.6	5.5			20.6	
8-YRK001.64	9/2/2008	M	7	25.7	7.6	5.3			20.6	
8-YRK001.64	9/2/2008	M	8	25.7	7.6	5.3			20.6	
8-YRK001.64	9/2/2008	M	9	25.7	7.6	5.3			20.6	
8-YRK001.64	9/2/2008	M	10	25.7	7.6	5.3			20.6	
8-YRK001.64	9/2/2008	M	11	25.7	7.6	5.3			20.6	
8-YRK001.64	9/2/2008	B	12	25.7	7.6	5.3			20.6	
8-YRK001.64	9/29/2008	S	1	22	7.8	7.5			20.5	1.4
8-YRK001.64	9/29/2008	M	2	22	7.8	7.5			20.5	
8-YRK001.64	9/29/2008	M	3	22	7.8	7.4			20.5	
8-YRK001.64	9/29/2008	M	4	22	7.8	7.4			20.5	
8-YRK001.64	9/29/2008	M	5	22	7.8	7.3			21	
8-YRK001.64	9/29/2008	M	6	22	7.8	7.2			21	
8-YRK001.64	9/29/2008	M	7	21.9	7.8	7.1			20.6	
8-YRK001.64	9/29/2008	M	8	21.9	7.8	7.1			20.6	
8-YRK001.64	9/29/2008	M	9	21.9	7.8	7			20.6	
8-YRK001.64	9/29/2008	M	10	21.9	7.8	7			20.6	
8-YRK001.64	9/29/2008	M	11	21.9	7.8	7			20.6	
8-YRK001.64	9/29/2008	M	12	21.9	7.8	7			20.6	
8-YRK001.64	9/29/2008	M	13	21.9	7.8	7			20.6	
8-YRK001.64	9/29/2008	B	14	21.9	7.8	7			20.6	
8-YRK001.64	11/20/2008	S	1	11.3	7.8	8.9			22.1	1.1
8-YRK001.64	11/20/2008	M	2	11.3	7.8	8.9			22.1	
8-YRK001.64	11/20/2008	M	3	11.3	7.8	8.9			22.1	
8-YRK001.64	11/20/2008	M	4	11.3	7.7	9			22.2	
8-YRK001.64	11/20/2008	M	5	11.3	7.7	9			22.2	
8-YRK001.64	11/20/2008	M	6	11.3	7.7	9			22.2	
8-YRK001.64	11/20/2008	M	7	11.3	7.7	9			22.4	
8-YRK001.64	11/20/2008	M	8	11.1	7.8	9.1			22.5	
8-YRK001.64	11/20/2008	M	9	11.1	7.8	9.2			22.6	
8-YRK001.64	11/20/2008	M	10	11.1	7.8	9.5			22.7	
8-YRK001.64	11/20/2008	M	11	10.9	7.8	10.4			22.7	
8-YRK001.64	11/20/2008	B	12	10.8	7.8	12.8			22.9	
8-YRK001.64	12/18/2008	S	1	8.8	7.8	11.1			21.2	2.3
8-YRK001.64	12/18/2008	M	2	8.8	7.8	11.2			21.2	
8-YRK001.64	12/18/2008	M	3	8.8	7.8	11.1			21.2	
8-YRK001.64	12/18/2008	M	4	8.7	7.8	11.3			21.3	
8-YRK001.64	12/18/2008	M	5	8.7	7.8	11.3			21.3	
8-YRK001.64	12/18/2008	M	6	8.7	7.8	11.3			21.3	
8-YRK001.64	12/18/2008	M	7	8.6	7.8	11.2			21.4	
8-YRK001.64	12/18/2008	M	8	8.4	7.8	11.3			21.7	
8-YRK001.64	12/18/2008	M	9	8.3	7.8	11.3			21.9	
8-YRK001.64	12/18/2008	M	10	8.3	7.8	11.5			21.9	
8-YRK001.64	12/18/2008	M	11	8.3	7.8	11.8			21.9	
8-YRK001.64	12/18/2008	M	12	8.3	7.8	12.1			21.9	
8-YRK001.64	12/18/2008	B	13	8.3	7.8	12.2			21.9	
8-YRK001.64	1/27/2009	S	1	3.3	7.5	14			20.2	1.6
8-YRK001.64	1/27/2009	M	2	3.3	7.5	13.8			20.4	
8-YRK001.64	1/27/2009	M	3	3.4	7.4	14.3			20.6	
8-YRK001.64	1/27/2009	M	4	3.5	7.4	14			20.6	
8-YRK001.64	1/27/2009	M	5	3.5	7.4	14.3			20.6	
8-YRK001.64	1/27/2009	M	6	3.4	7.4	14.2			20.7	
8-YRK001.64	1/27/2009	M	7	3.4	7.4	13.5			21.1	
8-YRK001.64	1/27/2009	M	8	3.4	7.4	12.8			21.5	
8-YRK001.64	1/27/2009	M	9	3.4	7.4	12.4			21.5	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	1/27/2009	M	10	3.3	7.4	13			21.5	
8-YRK001.64	1/27/2009	M	11	3.3	7.4	12.9			21.5	
8-YRK001.64	1/27/2009	M	12	3.2	7.3	12.5			22.1	
8-YRK001.64	1/27/2009	B	13	3.2	7.3	12.6			22.1	
8-YRK001.64	3/5/2009	S	1	4	7	13.5			19.9	1.4
8-YRK001.64	3/5/2009	M	2	4.1	7.2	13.8			20	
8-YRK001.64	3/5/2009	M	3	4.1	7.2	13.1			20	
8-YRK001.64	3/5/2009	M	4	4.1	7.2	12.7			20	
8-YRK001.64	3/5/2009	M	5	4.1	7.2	12.5			20	
8-YRK001.64	3/5/2009	M	6	4.1	7.2	12.6			20.1	
8-YRK001.64	3/5/2009	M	7	4.1	7.2	12.3			20.2	
8-YRK001.64	3/5/2009	M	8	4.2	7.2	12.3			20.4	
8-YRK001.64	3/5/2009	M	9	4.1	7.2	12.4			20.4	
8-YRK001.64	3/5/2009	M	10	4.1	7.2	11.9			20.5	
8-YRK001.64	3/5/2009	M	11	4.1	7.2	11.9			20.5	
8-YRK001.64	3/5/2009	M	12	4.2	7.2	11.3			20.6	
8-YRK001.64	3/5/2009	B	13	4.2	7.2	11.7			20.7	
8-YRK001.64	3/25/2009	S	1	9.3	7.5	9.7			18.7	2.2
8-YRK001.64	3/25/2009	M	2	9.3	7.5	9.7			19.1	
8-YRK001.64	3/25/2009	M	3	9.3	7.5	9.6			19.1	
8-YRK001.64	3/25/2009	M	4	9.3	7.5	9.6			19.2	
8-YRK001.64	3/25/2009	M	5	9.3	7.5	9.6			19.2	
8-YRK001.64	3/25/2009	M	6	9.2	7.4	9.5			19.3	
8-YRK001.64	3/25/2009	M	7	9.2	7.4	9.4			19.3	
8-YRK001.64	3/25/2009	M	8	9.1	7.4	9.2			19.5	
8-YRK001.64	3/25/2009	M	9	8.9	7.4	9			19.8	
8-YRK001.64	3/25/2009	M	10	8.8	7.4	8.9			20	
8-YRK001.64	3/25/2009	M	11	8.7	7.2	8.6			20.2	
8-YRK001.64	3/25/2009	M	12	8.3	7.2	8.3			20.7	
8-YRK001.64	3/25/2009	M	13	7.8	7.2	9.2			22.2	
8-YRK001.64	3/25/2009	B	14	7.5	7.2	8.1			23.8	
8-YRK001.64	4/28/2009	S	1	17	7.4	7.8			18.9	1
8-YRK001.64	4/28/2009	M	2	16.9	7.4	7.9			18.9	
8-YRK001.64	4/28/2009	M	3	16.9	7.4	7.9			19	
8-YRK001.64	4/28/2009	M	4	16.9	7.4	7.9			19	
8-YRK001.64	4/28/2009	M	5	16.8	7.4	8			19	
8-YRK001.64	4/28/2009	M	6	16.8	7.4	8			19	
8-YRK001.64	4/28/2009	M	7	16.8	7.4	8			19	
8-YRK001.64	4/28/2009	M	8	16.8	7.4	8			19	
8-YRK001.64	4/28/2009	M	9	16.7	7.4	8.1			19.1	
8-YRK001.64	4/28/2009	M	10	16.7	7.4	8			19.1	
8-YRK001.64	4/28/2009	M	11	16.6	7.4	7.8			19.1	
8-YRK001.64	4/28/2009	B	12	16.2	7.4	7.7			19.2	
8-YRK001.64	5/27/2009	S	1	21.3	7.5	6.7			18	1.1
8-YRK001.64	5/27/2009	M	2	21.4	7.5	6.8			18	
8-YRK001.64	5/27/2009	M	3	21.4	7.5	6.8			18.1	
8-YRK001.64	5/27/2009	M	4	21.4	7.5	6.8			18.1	
8-YRK001.64	5/27/2009	M	5	21.4	7.5	6.8			18.1	
8-YRK001.64	5/27/2009	M	6	21.4	7.5	6.8			18.1	
8-YRK001.64	5/27/2009	M	7	21.4	7.6	6.9			18.1	
8-YRK001.64	5/27/2009	M	8	21.4	7.5	6.9			18.1	
8-YRK001.64	5/27/2009	M	9	21.4	7.6	6.9			18.2	
8-YRK001.64	5/27/2009	M	10	21.5	7.6	6.9			18.2	
8-YRK001.64	5/27/2009	M	11	21.5	7.6	6.9			18.2	
8-YRK001.64	5/27/2009	M	12	21.5	7.6	6.9			18.2	
8-YRK001.64	5/27/2009	B	13	21.5	7.6	6.9			18.2	
8-YRK001.64	6/24/2009	S	1	24.5	7.4	5.3			18.7	0.9
8-YRK001.64	6/24/2009	M	2	24.5	7.4	5.3			18.7	
8-YRK001.64	6/24/2009	M	3	24.5	7.4	5.2			18.7	
8-YRK001.64	6/24/2009	M	4	24.5	7.4	5.2			18.7	
8-YRK001.64	6/24/2009	M	5	24.5	7.4	5.2			18.8	
8-YRK001.64	6/24/2009	M	6	24.5	7.4	5.2			18.7	
8-YRK001.64	6/24/2009	M	7	24.5	7.4	5.2			18.8	
8-YRK001.64	6/24/2009	M	8	24.5	7.4	5.1			18.8	
8-YRK001.64	6/24/2009	M	9	24.5	7.4	5.1			19	
8-YRK001.64	6/24/2009	M	10	24.5	7.4	4.8			19.1	
8-YRK001.64	6/24/2009	M	11	24.3	7.4	4.6			19.4	
8-YRK001.64	6/24/2009	B	12	24.3	7.4	4.6			19.5	
8-YRK001.64	7/28/2009	S	1	27	7.6	5.2			20.1	1
8-YRK001.64	7/28/2009	M	2	27	7.6	5.2			20.1	
8-YRK001.64	7/28/2009	M	3	27	7.6	5.4			20.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	7/28/2009	M	4	27	7.6	5.2			20.1	
8-YRK001.64	7/28/2009	M	5	27	7.6	5.1			20.1	
8-YRK001.64	7/28/2009	M	6	27	7.6	5.2			20.1	
8-YRK001.64	7/28/2009	M	7	26.9	7.6	5.3			20.2	
8-YRK001.64	7/28/2009	M	8	26.9	7.7	5.3			20.4	
8-YRK001.64	7/28/2009	M	9	26.7	7.7	4.9			20.9	
8-YRK001.64	7/28/2009	M	10	26.7	7.6	4.5			21	
8-YRK001.64	7/28/2009	M	11	26.5	7.6	4.3			21.4	
8-YRK001.64	7/28/2009	M	12	26.5	7.7	4.4			21.5	
8-YRK001.64	7/28/2009	B	13	26.3	7.6	4.1			21.8	
8-YRK001.64	9/22/2009	S	1	23.4	7.7	5.6			20	1
8-YRK001.64	9/22/2009	M	2	23.4	7.7	5.5			20	
8-YRK001.64	9/22/2009	M	3	23.4	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	4	23.4	7.7	5.5			20	
8-YRK001.64	9/22/2009	M	5	23.4	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	6	23.4	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	7	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	8	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	9	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	10	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	11	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	M	12	23.3	7.7	5.6			20	
8-YRK001.64	9/22/2009	B	13	23.3	7.7	5.6			20	
8-YRK001.64	10/29/2009	S	1	16.5	7.9	8.1			20.9	1.9
8-YRK001.64	10/29/2009	M	2	16.5	7.9	8.1			20.8	
8-YRK001.64	10/29/2009	M	3	16.5	7.9	8.1			20.8	
8-YRK001.64	10/29/2009	M	4	16.5	7.9	8.1			20.9	
8-YRK001.64	10/29/2009	M	5	16.5	7.9	8			20.9	
8-YRK001.64	10/29/2009	M	6	16.7	7.9	8			21.2	
8-YRK001.64	10/29/2009	M	7	16.7	7.9	7.9			21.5	
8-YRK001.64	10/29/2009	M	8	16.5	7.9	7.6			21.5	
8-YRK001.64	10/29/2009	M	9	16.2	7.9	7.4			22.4	
8-YRK001.64	10/29/2009	M	10	16.2	7.9	7.3			22.6	
8-YRK001.64	10/29/2009	M	11	16.2	7.9	7.1			22.8	
8-YRK001.64	10/29/2009	M	12	16.2	7.8	7			22.9	
8-YRK001.64	10/29/2009	M	13	16.2	7.8	7			22.9	
8-YRK001.64	10/29/2009	B	14	16.2	7.8	7.2			22.9	
8-YRK001.64	11/17/2009	S	1	13.6	7.8	8.8			18.7	1.3
8-YRK001.64	11/17/2009	M	2	13.6	7.8	8.9			18.7	
8-YRK001.64	11/17/2009	M	3	13.7	7.8	8.8			18.8	
8-YRK001.64	11/17/2009	M	4	13.8	7.8	8.6			18.9	
8-YRK001.64	11/17/2009	M	5	13.8	7.8	8.5			18.9	
8-YRK001.64	11/17/2009	M	6	13.8	7.8	8.6			19	
8-YRK001.64	11/17/2009	M	7	13.7	7.8	8.5			19.1	
8-YRK001.64	11/17/2009	M	8	13.7	7.8	8.4			19.1	
8-YRK001.64	11/17/2009	M	9	13.7	7.8	8.4			19.1	
8-YRK001.64	11/17/2009	M	10	13.7	7.8	8.6			19.1	
8-YRK001.64	11/17/2009	M	11	13.7	7.8	8.5			19.1	
8-YRK001.64	11/17/2009	M	12	13.7	7.8	8.5			19.1	
8-YRK001.64	11/17/2009	M	13	13.7	7.8	8.7			19.1	
8-YRK001.64	11/17/2009	B	14	13.7	7.8	9.2			19.1	
8-YRK001.64	12/17/2009	S	1	7.6	7.9	11.6			12.5	1.2
8-YRK001.64	12/17/2009	M	2	7.8	7.9	11.2			12.6	
8-YRK001.64	12/17/2009	M	3	7.8	7.9	11.4			12.6	
8-YRK001.64	12/17/2009	M	4	7.8	7.9	11.6			13	
8-YRK001.64	12/17/2009	M	5	8.7	7.9	10.6			16.1	
8-YRK001.64	12/17/2009	M	6	8.8	7.9	10.8			16.9	
8-YRK001.64	12/17/2009	M	7	8.8	7.9	10.3			17.6	
8-YRK001.64	12/17/2009	M	8	8.9	7.9	10.7			18.2	
8-YRK001.64	12/17/2009	M	9	8.9	7.9	10.6			18.6	
8-YRK001.64	12/17/2009	M	10	8.9	7.9	10			18.9	
8-YRK001.64	12/17/2009	M	11	8.9	7.9	9.9			18.9	
8-YRK001.64	12/17/2009	M	12	8.9	7.9	10.5			19	
8-YRK001.64	12/17/2009	B	13	8.9	7.9	11.3			19	
8-YRK001.64	1/20/2010	S	1	4.1	8.2	14.4			18	1.1
8-YRK001.64	1/20/2010	M	2	4.1	8.2	14.3			18	
8-YRK001.64	1/20/2010	M	3	4.1	8.1	14.2			18	
8-YRK001.64	1/20/2010	M	4	4	8.1	13.9			18.2	
8-YRK001.64	1/20/2010	M	5	4	8.1	13.6			18.4	
8-YRK001.64	1/20/2010	M	6	3.9	8.1	13			18.6	
8-YRK001.64	1/20/2010	M	7	3.5	8	12.7			19.2	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	1/20/2010	M	8	3.2	8	12.3			19.4	
8-YRK001.64	1/20/2010	M	9	3	7.9	12			20.2	
8-YRK001.64	1/20/2010	M	10	2.8	7.9	11.6			21.3	
8-YRK001.64	1/20/2010	M	11	2.7	7.8	11.4			23.3	
8-YRK001.64	1/20/2010	M	12	2.7	7.8	11.3			24.7	
8-YRK001.64	1/20/2010	B	13	2.8	7.8	11.5			24.8	
8-YRK001.64	2/17/2010	S	1	2.3	7.8	13.6			15.8	1.2
8-YRK001.64	2/17/2010	M	2	2.3	7.8	13.5			15.8	
8-YRK001.64	2/17/2010	M	3	2.4	7.8	14.4			15.9	
8-YRK001.64	2/17/2010	M	4	2.4	7.8	14			16.2	
8-YRK001.64	2/17/2010	M	5	2.5	7.8	14			16.9	
8-YRK001.64	2/17/2010	M	6	2.5	7.7	13.5			17	
8-YRK001.64	2/17/2010	M	7	2.5	7.8	13.4			17.1	
8-YRK001.64	2/17/2010	M	8	2.5	7.8	13.4			17.5	
8-YRK001.64	2/17/2010	M	9	2.6	7.8	12.8			18.7	
8-YRK001.64	2/17/2010	M	10	2.6	7.8	12.5			18.7	
8-YRK001.64	2/17/2010	M	11	2.6	7.7	12.2			20.2	
8-YRK001.64	2/17/2010	M	12	2.6	7.7	12.9			23.1	
8-YRK001.64	2/17/2010	B	13	2.7	7.7	12.1			23.1	
8-YRK001.64	3/17/2010	S	1	8.6	8.2	11.5			16.3	1.3
8-YRK001.64	3/17/2010	M	2	8.7	8.2	11.5			16.5	
8-YRK001.64	3/17/2010	M	3	8.7	8.2	11.4			16.5	
8-YRK001.64	3/17/2010	M	4	8.8	8.2	11.4			16.5	
8-YRK001.64	3/17/2010	M	5	8.8	8.1	11.1			16.6	
8-YRK001.64	3/17/2010	M	6	8.7	8.1	11			16.7	
8-YRK001.64	3/17/2010	M	7	8.7	8.1	10.7			16.8	
8-YRK001.64	3/17/2010	M	8	8.6	8	10.4			17.2	
8-YRK001.64	3/17/2010	M	9	8.4	8	9.9			17.5	
8-YRK001.64	3/17/2010	M	10	7.6	7.9	9.7			19.9	
8-YRK001.64	3/17/2010	M	11	7.2	7.8	9.5			21.1	
8-YRK001.64	3/17/2010	M	12	6.6	7.8	9.4			22.9	
8-YRK001.64	3/17/2010	B	13	6.1	7.7	9.5			24.4	
8-YRK001.64	4/29/2010	S	1	15.3	7.6	7.4			17.7	0.8
8-YRK001.64	4/29/2010	M	2	15.3	7.6	7.4			17.9	
8-YRK001.64	4/29/2010	M	3	15.3	7.6	7.4			17.9	
8-YRK001.64	4/29/2010	M	4	15.3	7.6	7.4			17.9	
8-YRK001.64	4/29/2010	M	5	15.3	7.6	7.4			18	
8-YRK001.64	4/29/2010	M	6	15.3	7.6	7.4			18	
8-YRK001.64	4/29/2010	M	7	15.3	7.6	7.4			18.2	
8-YRK001.64	4/29/2010	M	8	15.2	7.6	7.3			18.4	
8-YRK001.64	4/29/2010	M	9	15.2	7.6	7.3			18.5	
8-YRK001.64	4/29/2010	M	10	15.2	7.6	7.2			18.7	
8-YRK001.64	4/29/2010	M	11	15.1	7.6	7.3			18.9	
8-YRK001.64	4/29/2010	B	12	15.1	7.6	7.3			18.9	
8-YRK001.64	6/15/2010	S	1	25.9	7.8	5.6			20	1.1
8-YRK001.64	6/15/2010	M	2	25.9	7.8	5.4			20	
8-YRK001.64	6/15/2010	M	3	25.7	7.7	4.9			20.1	
8-YRK001.64	6/15/2010	M	4	25.7	7.7	5			20.2	
8-YRK001.64	6/15/2010	M	5	25.6	7.7	4.8			20.2	
8-YRK001.64	6/15/2010	M	6	25.5	7.7	4.7			20.2	
8-YRK001.64	6/15/2010	M	7	25.5	7.7	4.7			20.3	
8-YRK001.64	6/15/2010	M	8	25.3	7.7	4.4			20.4	
8-YRK001.64	6/15/2010	M	9	25.2	7.6	4.2			20.4	
8-YRK001.64	6/15/2010	M	10	25	7.6	4			20.5	
8-YRK001.64	6/15/2010	M	11	24.7	7.6	3.7			20.6	
8-YRK001.64	6/15/2010	M	12	24.3	7.5	3.3			21	
8-YRK001.64	6/15/2010	B	13	24.1	7.5	3.1			21.2	
8-YRK001.64	7/20/2010	S	1	28	7.8	5			21.1	1.3
8-YRK001.64	7/20/2010	M	2	28	7.8	4.9			21.1	
8-YRK001.64	7/20/2010	M	3	27.9	7.8	4.8			21.1	
8-YRK001.64	7/20/2010	M	4	27.9	7.8	4.8			21.2	
8-YRK001.64	7/20/2010	M	5	27.9	7.8	4.9			21.2	
8-YRK001.64	7/20/2010	M	6	27.9	7.8	4.9			21.3	
8-YRK001.64	7/20/2010	M	7	27.8	7.8	4.9			21.3	
8-YRK001.64	7/20/2010	M	8	27.7	7.8	4.8			21.4	
8-YRK001.64	7/20/2010	M	9	27.4	7.9	4.7			22	
8-YRK001.64	7/20/2010	M	10	27.3	7.9	4.6			22.2	
8-YRK001.64	7/20/2010	M	11	27.1	7.9	4.5			22.5	
8-YRK001.64	7/20/2010	M	12	26	7.9	4.2			22.6	
8-YRK001.64	7/20/2010	B	13	26.7	7.8	3.5			22.9	
8-YRK001.64	9/21/2010	S	1	24.3	8	6.6			22.6	1.5

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	9/21/2010	M	2	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	3	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	4	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	5	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	6	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	7	24.3	8	6.6			22.6	
8-YRK001.64	9/21/2010	M	8	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	M	9	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	M	10	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	M	11	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	M	12	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	M	13	24.3	7.9	6.6			22.6	
8-YRK001.64	9/21/2010	B	14	24.3	7.9	6.6			22.6	
8-YRK001.64	10/19/2010	S	1	18.2	7.9	8			20.5	1.5
8-YRK001.64	10/19/2010	M	2	18.2	7.9	8			20.5	
8-YRK001.64	10/19/2010	M	3	18.2	7.9	7.9			20.6	
8-YRK001.64	10/19/2010	M	4	18.2	7.9	7.9			20.6	
8-YRK001.64	10/19/2010	M	5	18.1	7.9	7.8			20.7	
8-YRK001.64	10/19/2010	M	6	18.2	7.9	7.7			20.9	
8-YRK001.64	10/19/2010	M	7	18.2	7.9	7.5			21	
8-YRK001.64	10/19/2010	M	8	18.3	7.9	7.3			21.1	
8-YRK001.64	10/19/2010	M	9	18.3	7.9	7.4			21.2	
8-YRK001.64	10/19/2010	M	10	18.3	7.9	7.3			21.3	
8-YRK001.64	10/19/2010	M	11	18.3	7.9	7.3			21.6	
8-YRK001.64	10/19/2010	M	12	18.3	7.9	7.4			21.8	
8-YRK001.64	10/19/2010	M	13	18.3	7.9	7.4			21.8	
8-YRK001.64	10/19/2010	B	14	18.3	7.9	7.5			21.8	
8-YRK001.64	11/16/2010	S	1	12.7	8			9.9	21.2	2.6
8-YRK001.64	11/16/2010	M	2	12.7	8			9.8	21.3	
8-YRK001.64	11/16/2010	M	3	12.8	8			9.6	21.8	
8-YRK001.64	11/16/2010	M	4	12.7	8			9.4	21.6	
8-YRK001.64	11/16/2010	M	5	21.5	7.9			9.3	21.7	
8-YRK001.64	11/16/2010	M	6	21.5	8			9.2	21.8	
8-YRK001.64	11/16/2010	M	7	21.5	8			8.8	21.6	
8-YRK001.64	11/16/2010	M	8	12.8	7.9			8.3	22.4	
8-YRK001.64	11/16/2010	M	9	12.8	7.9			7.8	22.8	
8-YRK001.64	11/16/2010	M	10	12.8	7.8			7.4	24.6	
8-YRK001.64	11/16/2010	M	11	13	7.8			7.3	25	
8-YRK001.64	11/16/2010	M	12	13	7.8			7.5	25.5	
8-YRK001.64	11/16/2010	B	13	13	7.8			7.5	26	
8-YRK001.64	1/19/2011	S	1	2.1	8			12.4	20.7	2
8-YRK001.64	1/19/2011	M	2	2.1	8			12.4	20.8	
8-YRK001.64	1/19/2011	M	3	2.1	8			12.4	20.8	
8-YRK001.64	1/19/2011	M	4	2	8			12.3	20.8	
8-YRK001.64	1/19/2011	M	5	1.9	8			12.3	20.9	
8-YRK001.64	1/19/2011	M	6	1.9	8			12.3	21	
8-YRK001.64	1/19/2011	M	7	1.9	8			12.2	21.1	
8-YRK001.64	1/19/2011	M	8	1.9	8			12.1	21.1	
8-YRK001.64	1/19/2011	M	9	1.9	8			12.1	21.2	
8-YRK001.64	1/19/2011	M	10	2	8			11.9	21.2	
8-YRK001.64	1/19/2011	M	11	1.9	8			11.8	21.5	
8-YRK001.64	1/19/2011	M	12	1.9	7.9			11.7	21.6	
8-YRK001.64	1/19/2011	M	13	1.9	7.9			11.5	21.8	
8-YRK001.64	1/19/2011	B	14	1.9	7.9			11.3	22.3	
8-YRK001.64	2/16/2011	S	1	4.3	7.9			11.8	19.9	1.7
8-YRK001.64	2/16/2011	M	2	4.3	7.9			11.8	19.9	
8-YRK001.64	2/16/2011	M	3	4.3	7.9			11.8	20.1	
8-YRK001.64	2/16/2011	M	4	4.4	7.9			11.7	20.2	
8-YRK001.64	2/16/2011	M	5	4.3	7.9			11.7	20.3	
8-YRK001.64	2/16/2011	M	6	4.3	7.9			11.7	20.3	
8-YRK001.64	2/16/2011	M	7	4.3	7.9			11.7	20.3	
8-YRK001.64	2/16/2011	M	8	4.4	7.8			11.6	20.5	
8-YRK001.64	2/16/2011	M	9	4.2	7.8			11.6	20.6	
8-YRK001.64	2/16/2011	M	10	4.2	7.8			11.6	20.6	
8-YRK001.64	2/16/2011	M	11	4.1	7.8			11.3	20.8	
8-YRK001.64	2/16/2011	M	12	3.9	7.8			11.3	21.2	
8-YRK001.64	2/16/2011	M	13	3.7	7.8			11.2	22	
8-YRK001.64	2/16/2011	B	14	3.4	7.7			11.1	23	
8-YRK001.64	3/15/2011	S	1	8.9	7.7			10.4	20	2.6
8-YRK001.64	3/15/2011	M	2	8.8	7.7			10.4	20.1	
8-YRK001.64	3/15/2011	M	3	8.8	7.7			10.4	20.1	

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler	Fdt Do Optical	Salinity	Secchi Depth
8-YRK001.64	3/15/2011	M	4	8.8	7.7			10.4	20.1	
8-YRK001.64	3/15/2011	M	5	8.8	7.7			10.3	20.2	
8-YRK001.64	3/15/2011	M	6	8.9	7.7			10.3	20.3	
8-YRK001.64	3/15/2011	M	7	8.9	7.7			10.3	20.4	
8-YRK001.64	3/15/2011	M	8	8.9	7.7			10.3	20.4	
8-YRK001.64	3/15/2011	M	9	9	7.7			10.2	20.5	
8-YRK001.64	3/15/2011	M	10	9	7.7			10.2	20.5	
8-YRK001.64	3/15/2011	M	11	8.9	7.7			10.1	20.5	
8-YRK001.64	3/15/2011	M	12	8.8	7.7			10	20.5	
8-YRK001.64	3/15/2011	M	13	8.6	7.6			9.9	20.6	
8-YRK001.64	3/15/2011	B	14	8.4	7.6			9.9	20.8	
8-YRK001.64	4/19/2011	S	1	14.6	7.7			8.4	17.3	0.8
8-YRK001.64	4/19/2011	M	2	14.6	7.7			8.4	17.3	
8-YRK001.64	4/19/2011	M	3	14.6	7.7			8.3	17.3	
8-YRK001.64	4/19/2011	M	4	14.6	7.7			8.3	17.3	
8-YRK001.64	4/19/2011	M	5	14.6	7.7			8.3	17.3	
8-YRK001.64	4/19/2011	M	6	14.6	7.7			8.3	17.3	
8-YRK001.64	4/19/2011	M	7	14.6	7.7			8.3	17.4	
8-YRK001.64	4/19/2011	M	8	14.6	7.8			8.4	17.4	
8-YRK001.64	4/19/2011	M	9	14.6	7.8			8.4	17.4	
8-YRK001.64	4/19/2011	M	10	14.6	7.8			8.3	17.5	
8-YRK001.64	4/19/2011	M	11	14.6	7.8			8.3	17.5	
8-YRK001.64	4/19/2011	M	12	14.6	7.8			8.2	17.5	
8-YRK001.64	4/19/2011	M	13	14.4	7.8			8.2	17.8	
8-YRK001.64	4/19/2011	B	14	14.3	7.8			8	17.7	
90th Percentile				26.4	8.0					
10th Percentile				5.8	7.4					
Average									20.9	

Attachment B

Facility Flow Diagram

RECEIVED
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PRO

**VIMS Seawater Research Laboratory
Seawater Post-Use Treatment Systems**

Mixed Media and Carbon Adsorption System (MMF)

Available in:

Toxicology Lab
BSL-2 Lab
BSL-3 Lab

Active Components:

1,100 gallon sump.

Two 5 HP lift pumps with a capacity of 97.6 gpm each operating on a lead-lag system based on water level in sump.

Two Culligan HiFlo 42F 7.07 cu ft mixed media filters rated at 90 gpm* each to remove particulates. (Backwash to sanitary). Operated in parallel and are programmed for independent automatic backwash.

Two Culligan HiFlo 42S 9.62 cu ft activated carbon adsorption filters rated at 90** gpm each. (Backwash to sanitary). Filters operated in parallel and are programmed for independent automatic backwash. With a volume of activated charcoal of 23.4 cu ft and a contact time of 1.9 minutes.

Two 25 micron bag filters to remove fine particulates.

All treated water from this system enters the Aquaculture Wastewater (AWW) sump for further treatment.

Passive Components:

Two 7.5 HP backwash pumps with a capacity of 173 gpm each. Each one used for the backwash of only one of the two parallel systems.

Two 461 gal backwash tanks. For holding domestic freshwater prior to backwashing.

Aquaculture Wastewater Treatment System (AWW)

Available in:

Multi-purpose Lab
BSL-2 Lab
BSL-3 Lab
Coral Lab
RAD Labs 1 and 2
Toxicology Lab

Components:

1,600 gallon sump

Two 7.5 HP lift pumps with a capacity of 330 gpm each operating in parallel on a lead-lag system based on water level in sump.

Rotating drum screen filter for removal of particulates greater than 40 microns. (Backwash to sanitary).

Ozone reaction tank (2,069 gal) for disinfection, and oxidation of dissolved organic compounds.

Ozone destruct tank (2,069 gal) to reduce residual unreacted ozone.

Outfall to York River.

Direct Outfall to River (OTF)

Available in:

Water Treatment Building

Multi-purpose Lab

BSL-2 Lab

Toxicology Lab

Only for water not requiring any further treatment (i.e., bivalve flow-through, water used only for instrument calibration, unused water etc...)

Hazardous Waste Lift System (HAW)

Available in:

BSL-2 Lab

BSL-3 Lab

RAD Labs 1 and 2

Toxicology Lab

Components:

Double wall piping for the entire run.

340 gal sump

Two 0.75 HP lift pumps with a capacity of 61.4 gpm each operating on a lead-lag system based on water level in sump.

Two 1550 gallon double walled UV stabilized polyethylene hazardous waste storage tanks. (Tanks operating only as holding vessels until removal by a state approved hazardous waste removal company).

- * Mixed media filtration Quality
- 71 gpm Superior water quality
- 107 gpm High water quality
- 142 gpm Utility water quality

- ** Carbon Adsorption Water Quality (based on manufacturers removal of chlorine and taste and odor causing substances)
- 39 gpm Superior water quality
- 58 gpm High water quality
- 77 gpm Utility water quality

Toxicology Lab Basic Operating Procedure

Among the information all users will be required to provide the following at least 90 days prior to the commencement of any research trial:

Type of toxin(s) to be used

Quantity of toxin(s) to be used

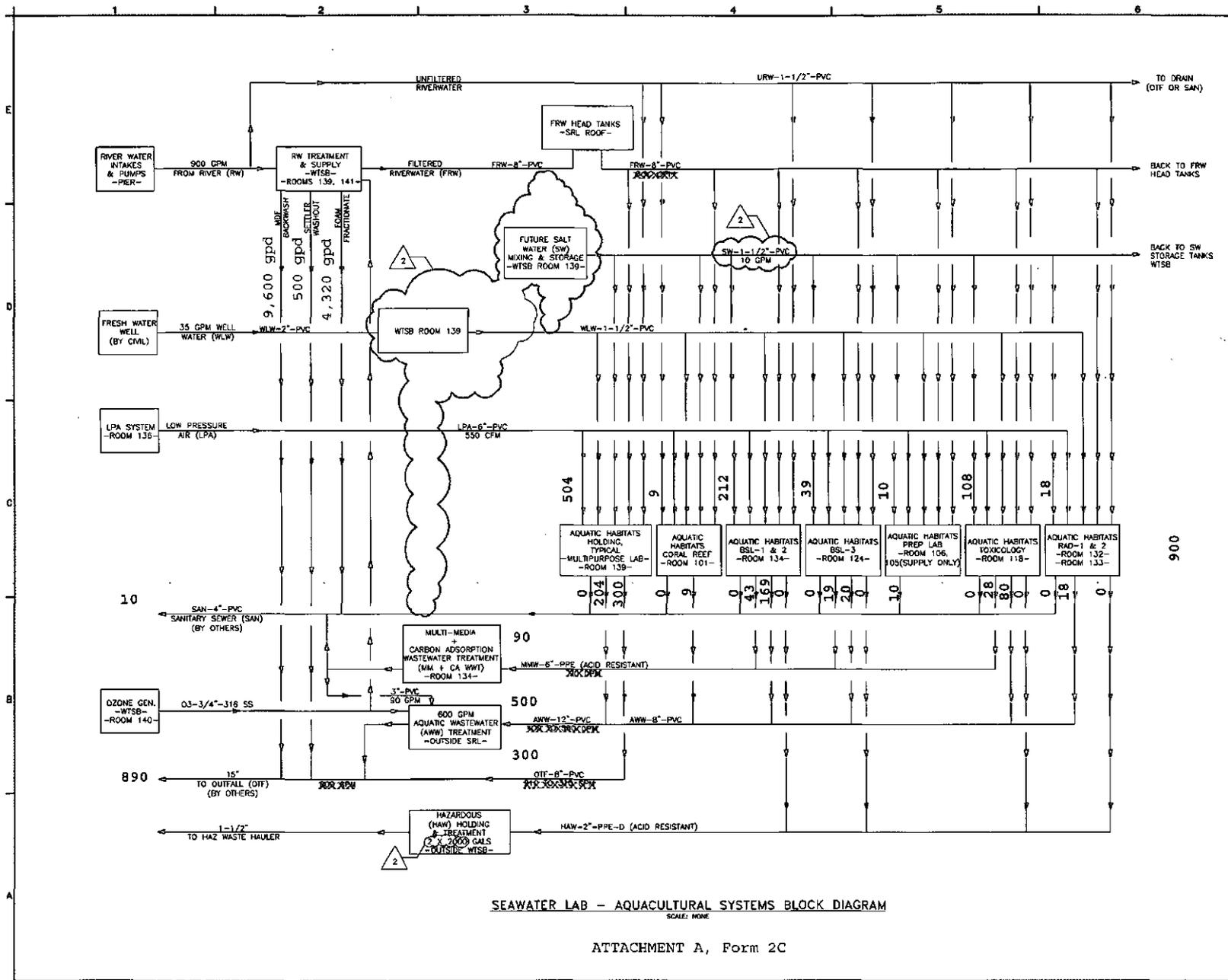
Method of exposure (e.g., static bath, injection, ingestion, etc...)

Known effective water treatment for said toxin(s)

Organism(s) to be used

Type and quantity of water source to be used (i.e., Raw river water, filtered river water, deionized water, etc...)

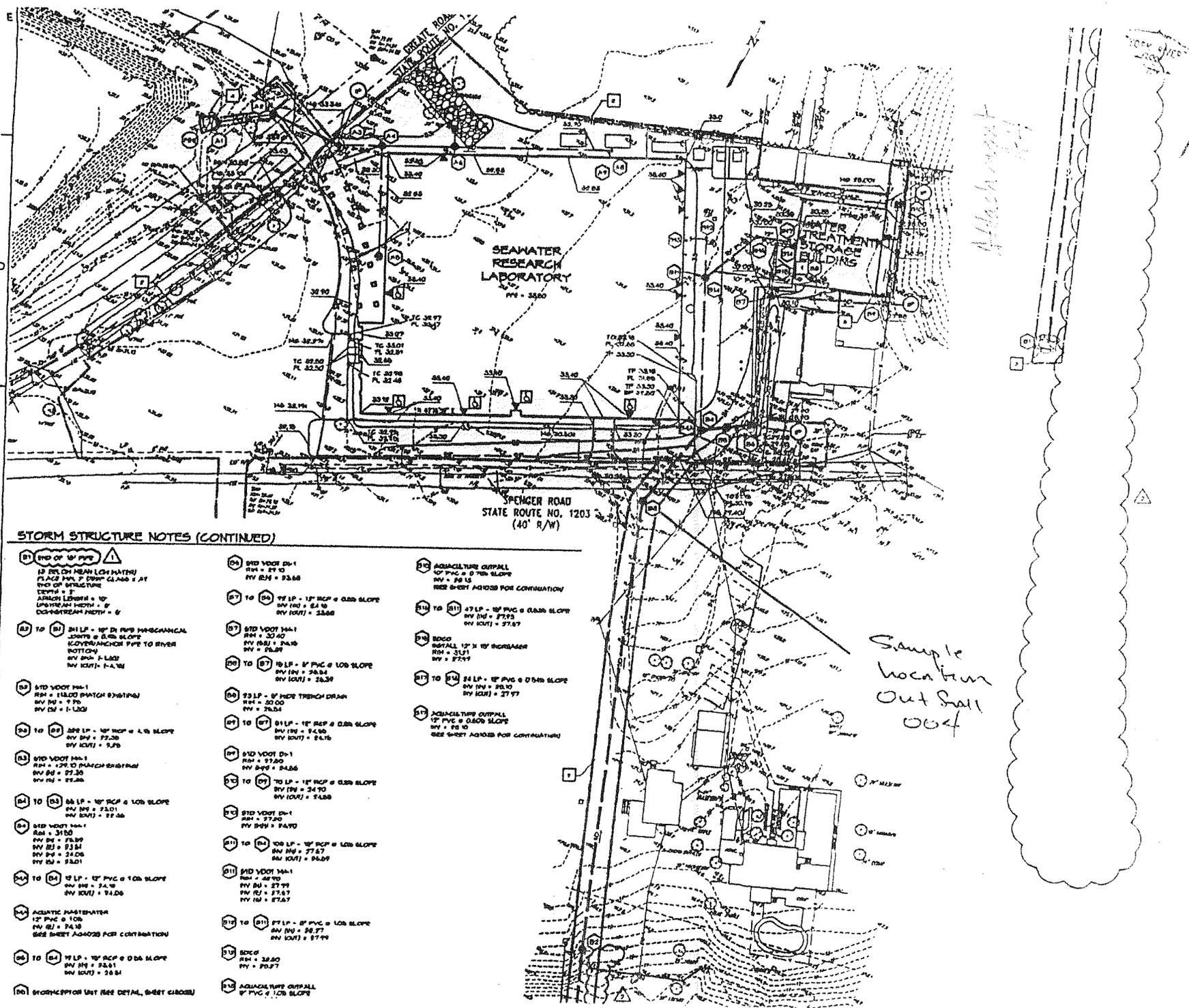
Based on the nature of the toxin(s), quantity used, method of exposure, and volume of water to be treated, a determination will be made by the SRL Director, the Principal Investigator, and the VIMS Safety Office as to what pre-treatments, would be necessary of the waste water before entering the MMF System. If no effective treatment is available, the waste will be sent to the HAW System for off-site treatment or disposal at an approved site.



SEAWATER RESEARCH LABORATORY
VIRGINIA INSTITUTE OF MARINE SCIENCE
GLoucester Point, VIRGINIA

NOT FOR CONSTRUCTION

AQUACULTURAL SYSTEMS DIAGRAMS
AQ304B



STORM STRUCTURE NOTES (CONTINUED)

- (01) END OF 18" PIPE
12" R/C IN MEAN (CONCRETE)
PLACE PIP. P. FROM CLASS. AT
END OF STRUCTURE
DEPTH = 2'
ARMOR LENSES = 10"
UPSTREAM SIDE = 8"
DOWNSTREAM SIDE = 6"
- (02) 24" LP - 12" RCP @ 0.5% SLOPE
CONCRETE PIPE TO RIVER
BOTTOM
INV. INLET = 1.00
INV. OUTLET = 1.10
- (03) STD VOID M-1
RM = 11.00 (MATCH EXISTING)
INV. IN = 1.00
INV. OUT = 1.00
- (04) 24" LP - 12" RCP @ 1.0% SLOPE
INV. IN = 22.20
INV. OUT = 23.00
- (05) STD VOID M-1
RM = 12.00 (MATCH EXISTING)
INV. IN = 22.20
INV. OUT = 23.00
- (06) 24" LP - 12" RCP @ 1.0% SLOPE
INV. IN = 23.01
INV. OUT = 23.80
- (07) STD VOID M-1
RM = 31.50
INV. IN = 23.89
INV. OUT = 23.81
INV. IN = 24.06
INV. OUT = 23.01
- (08) 12" LP - 12" PVC @ 1.0% SLOPE
INV. IN = 24.0
INV. OUT = 24.06
- (09) AGRI-CULTURE OUTFALL
12" PVC @ 1.0%
SEE SHEET AG-029 FOR CONTINUATION
- (10) 12" LP - 12" RCP @ 0.5% SLOPE
INV. IN = 23.81
INV. OUT = 23.81
- (11) STD VOID D-1
RM = 27.00
INV. IN = 24.86
- (12) 12" LP - 12" RCP @ 0.5% SLOPE
INV. IN = 24.70
INV. OUT = 24.80
- (13) STD VOID D-1
RM = 27.20
INV. IN = 24.90
- (14) 12" LP - 12" RCP @ 1.0% SLOPE
INV. IN = 27.87
INV. OUT = 28.67
- (15) STD VOID M-1
RM = 48.00
INV. IN = 27.99
INV. OUT = 27.67
INV. IN = 27.67
- (16) 24" LP - 12" RCP @ 1.0% SLOPE
INV. IN = 26.77
INV. OUT = 27.99
- (17) STD VOID M-1
RM = 32.00
INV. IN = 28.81
INV. OUT = 28.81
- (18) AGRI-CULTURE OUTFALL
12" PVC @ 1.0% SLOPE
SEE SHEET AG-029 FOR CONTINUATION
- (19) 24" LP - 12" RCP @ 0.5% SLOPE
INV. IN = 24.10
INV. OUT = 24.17
- (20) 24" LP - 12" RCP @ 0.5% SLOPE
INV. IN = 24.10
INV. OUT = 24.17
- (21) 24" LP - 12" RCP @ 0.5% SLOPE
INV. IN = 24.10
INV. OUT = 24.17
- (22) AGRI-CULTURE OUTFALL
12" PVC @ 1.0% SLOPE
SEE SHEET AG-029 FOR CONTINUATION

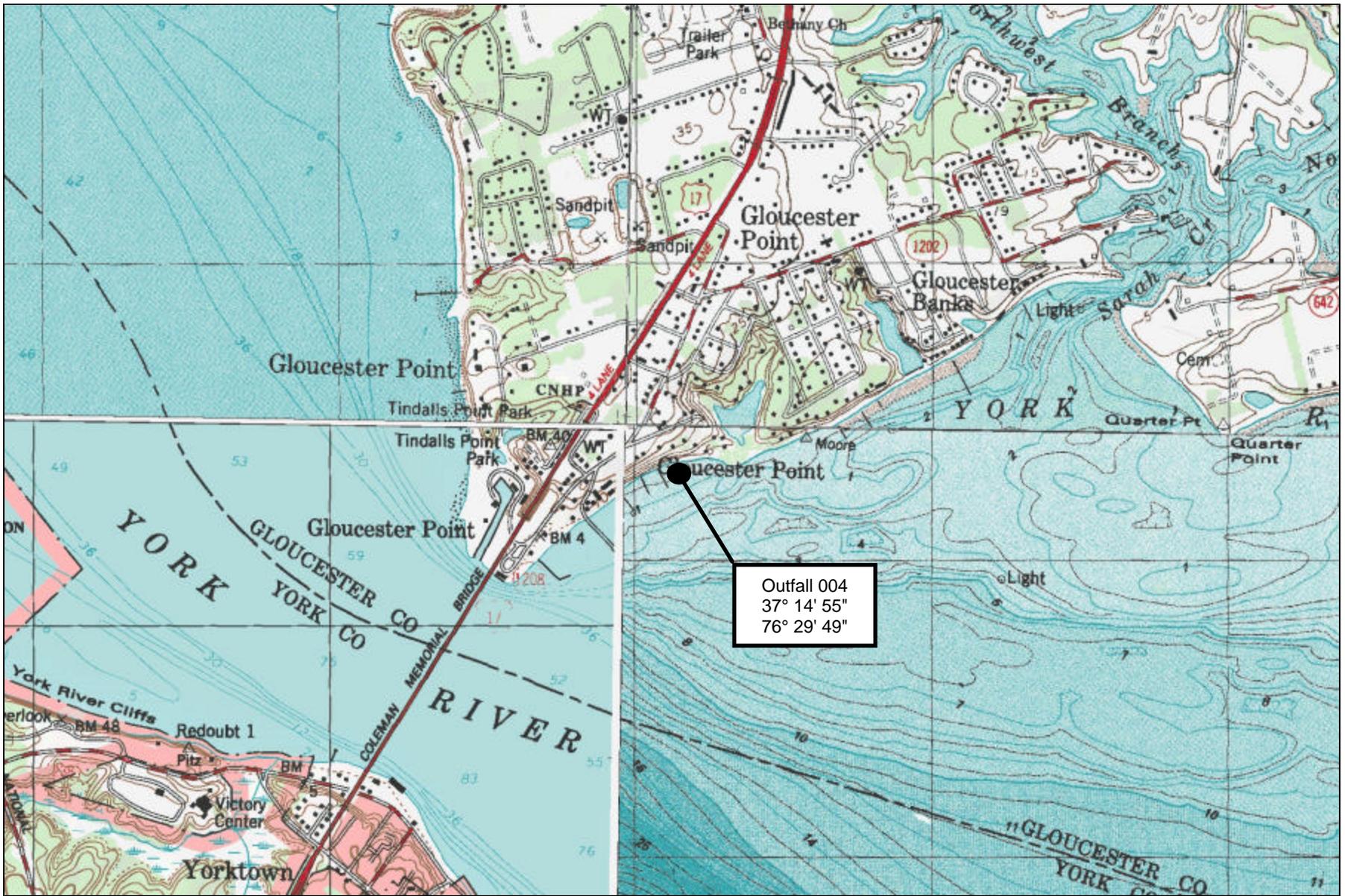
Attachment

Sample location
Outfall
004

DATE: 10/1/00
BY: [Signature]

Attachment C

Topographic Map



0 ————— 0.5 Mi
 0 ————— 2000 Ft

Map provided by MyTopo.com

Attachment D

Site Inspection Memorandum



MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949-A Cox Road

Glen Allen, Virginia 23060

(804) 527-5020

TO: File

FROM: Drew Hammond, Water Permit Writer

DATE: August 4, 2011

SUBJECT: VA0071528 – VIMS Gloucester Point
Facility Site Visit

On Tuesday, June 14, 2011, Jeremy Kazio and I met with Jim Brister, Director of the Virginia Institute of Marine Science (VIMS) Seawater Research Laboratory. This facility currently holds an individual Virginia Pollutant Discharge Elimination System (VPDES) permit for a minor, industrial facility. VIMS is currently permitted (VA0071528) to discharge industrial wastewaters associated with the operation of the Seawater Research Laboratory (SRL) at Outfall 004 and Byrd Hall at Outfall 003. It was noted during our site visit that Byrd Hall has been demolished (subsequent to the construction of the SRL) and Outfall 003 has been eliminated.

Mr. Brister provided a tour of the SRL with regards to influent water treatment and effluent wastewater treatment. Seawater from the York River is pumped to the raw water treatment and supply facility for treatment prior to utilization. See Figure 1. The incoming seawater is treated via a number of processes which include: conical settling (backwash to Outfall 004), microscreen drum filtration (backwash to Outfall 004), and foam fractionation (backwash to public sanitary sewer system). After treatment, the seawater is then pumped to two (2) 3,000 gallon holding tanks located on top of the SRL for distribution. Treated seawater not pumped to the SRL is discharged back to the York River via gravity through Outfall 004.

Once at the SRL, the treated seawater is available in a number of laboratories for utilization in research experiments. Each laboratory is equipped with a number of different seawater treatment and disposal options depending upon the potential toxicity of the wastewater. The mixed-media and carbon adsorption filtration treatment system (MMF) consists of two (2) mixed-media filters, two (2) carbon adsorption filters, and two (2) 25 micron bag filters. See Figure 2. Backwash wastewaters from this system are discharged to the public sanitary sewer system. Treated effluent from the MMF is discharged to the aquaculture wastewater treatment system (AWW) for further treatment. The MMF can receive influent from a number of different laboratories which include: the Bio-safety Lab 1, Bio-safety Lab 2, Bio-safety Lab 3, and the Toxicology Lab. At the time of our site visit, the MMF system was currently not in use.

The AWW consists of one (1) rotating microscreen drum filter, one (1) 2,069 gallon ozone reaction tank, and one (1) 2,069 gallon ozone destruction tank. See Figure 3. Backwash wastewaters from this system are also discharge to the public sanitary sewer system. Treated effluent from the AWW is discharged to Outfall 004. The AWW can receive influent from a number of different laboratories which include: the Multi-purpose (Aquaculture) Lab, Coral Reef Lab, Bio-safety Lab 1, Bio-safety Lab 2, Bio-safety Lab 3, Radiological Lab 1, Radiological Lab 2, and the Toxicology Lab.

The SRL also has the capability of storing hazardous wastes utilized in laboratory experiments (if the need should ever arise). The hazardous waste storage system (HAW) consists of two (2) double walled, ultraviolet light stabilized, polyethylene hazardous waste storage tanks. The storage tanks are located outside of the SRL in a limited access area enclosed with security fencing. See Figure 4.

Finally, VPDES permit monitoring for Outfall 004 is performed at Manhole B3, which is located near the southeast corner of the SRL. See Figure 5.



Figure 1. Raw Water Treatment & Supply Facility



Figure 2. Mixed-Media and Carbon Adsorption Filtration System



Figure 3. Aquaculture Wastewater Treatment System



Figure 4. Manhole B3 Utilized for VPDES Permit Monitoring.



Figure 5. Hazardous Waste Storage System

Attachment E

Effluent DMR Data

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 004

DMR Due Date	Flow		pH		Total Suspended Solids		Dissolved Oxygen	
	Monthly Avg.	Maximum	Minimum	Maximum	Monthly Avg.	Maximum	Monthly Avg.	Minimum
	MGD	MGD	s.u.	s.u.	mg/L	mg/L	mg/L	mg/L
6/10/08	0.396	0.396	7.67	8.28	9.5	11	7.87	6.82
7/10/08	0.677	0.677	7.51	8.08	9	10	7.171	5.83
8/10/08	0.677	0.677	7.41	8.24	16.5	18	7.14	5.96
9/10/08	0.677	0.677	7.64	8.19	9.5	12	6.897	5.87
10/10/08	0.6768	0.6768	7.80	8.13	5.5	7	7.456	6.83
11/10/08	0.677	0.677	7.79	8.18	16.5	21	8.138	7.34
12/10/08	0.677	0.677	7.89	8.07	6.5	7.0	9.15	8.19
1/10/09	0.677	0.677	8.02	8.26	55	7	10.17	9.39
2/10/09	0.677	0.677	8.02	8.2	7.5	9	12.22	10.60
3/10/09	0.677	0.677	7.84	8.12	6.5	7	11.54	11.18
4/10/09	0.677	0.677	7.83	7.99	4.5	6	10.89	10.57
5/10/09	0.677	0.677	7.72	7.84	2.0	3	10.22	9.38
6/10/09	0.677	0.677	7.67	7.85	7.5	9	8.32	7.16
7/10/09	0.677	0.677	7.65	8.14	7.5	8	7.67	7.01
8/10/09	0.677	0.677	7.59	7.91	4.0	NULL	6.56	4.98
9/10/09	0.936	0.936	7.68	8.06	26.5	46.0	6.87	4.96
10/10/09	1.008	1.008	7.68	7.86	10.00	13.0	6.49	4.52
11/10/09	1.008	1.008	7.75	7.87	10.00	15.0	8.59	6.81
12/10/09	1.008	1.008	7.80	7.9	4.5	5.0	10.01	8.83
1/10/10	1.008	1.008	7.84	8.03	4.0	4.0	12.63	10.35
2/10/10	1.008	1.008	7.92	8.5	109.5	199.0	12.50	10.92
3/10/10	1.008	1.008	8.04	8.27	19.0	28.0	12.15	11.63
4/10/10	1.008	1.008	8.00	8.48	12.0	15.0	10.72	9.86
5/10/10	1.008	1.008	7.69	8.25	14.75	17.6	9.425	8.64
6/10/10	1.008	1.008	7.68	7.89	11.75	14.6	7.72	5.40
7/10/10	1.008	1.008	7.51	7.87	10.65	17.3	7.17	6.71
8/10/10	1.008	1.008	7.57	7.96	8.9	11.9	6.74	4.62
9/10/10	1.008	1.008	7.63	8.09	10.4	12.8	7.04	6.30
10/10/10	1.008	1.008	7.48	7.82	14.6	21.3	7.40	6.88
11/10/10	1.008	1.008	7.72	7.98	10.2	14.5	8.12	7.60
12/10/10	1.008	1.008	7.89	8.02	5.45	6.3	8.886	8.30
1/10/11	1.008	1.008	7.94	8.15	11.8	11.9	11.088	8.73
2/10/11	1.008	1.008	7.78	8.38	13.45	15.2	13.05	11.80
3/10/11	1.008	1.008	7.83	8.12	12.45	15.3	12.16	11.14
4/10/11	1.008	1.008	7.34	7.93	4.7	8.1	10.87	10.02
5/10/11	1.008	1.008	7.17	8.15	6.9	12.5	9.57	6.9

90% **8.3**
 10% **7.9**

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 004

DMR Due Date	Total Phosphorus		Total Nitrogen		Total Organic Carbon		Total Kjeldahl Nitrogen	
	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Maximum	Monthly Avg.	Monthly Avg.
	mg/L	lb/d	mg/L	lb/d	mg/L	mg/L	mg/L	lb/d
6/10/08	<QL	<QL	0.45	1.486	3.55	3.7	0.45	1.486
7/10/08	<QL	<QL	0.25	1.411	3.35	3.6	0.25	1.411
8/10/08	<QL	<QL	0.55	3.103	<QL	<QL	0.55	3.103
9/10/08	0.1	0.564	0.3	1.693	<QL	<QL	0.3	1.693
10/10/08	0.040	0.226	0.250	1.411	13.0	24.5	0.250	1.411
11/10/08	<QL	<QL	0.300	1.693	1.050	2.1	0.300	1.693
12/10/08	0.180	1.016	0.300	1.693	2.35	2.5	0.300	1.693
1/10/09	0.075	0.423	0.050	0.282	12.45	21.6	0.050	0.282
2/10/09	0.025	0.141	0.900	5.078	2.5	2.6	0.900	5.078
3/10/09	0.010	0.056	0.350	1.975	10.7	20.4	0.350	1.975
4/10/09	0.30	0.169	0.300	1.694	1.1	2.6	0.300	1.694
5/10/09	<QL	<QL	0.250	1.411	2.6	2.9	0.250	1.411
6/10/09	<QL	<QL	0.70	3.95	2.95	3.3	0.70	3.95
7/10/09	<QL	<QL	0.50	2.821	3.0	3.4	0.45	2.539
8/10/09	<QL	<QL	<QL	<QL	2.45	2.6	<QL	<QL
9/10/09	<QL	<QL	0.2	1.561	1.15	2.3	0.2	1.561
10/10/09	<QL	<QL	0.2	1.681	11.5	19.6	0.15	1.261
11/10/09	<QL	<QL	0.35	91.180	<QL	<QL	0.3	71.154
12/10/09	<QL	<QL	0.20	1.681	<QL	<QL	0.2	1.681
1/10/10	<QL	<QL	0.45	3.782	<QL	<QL	0.45	3.782
2/10/10	0.16	1.345	1.2	10.084	2.95	5.9	1.2	10.084
3/10/10	<QL	<QL	1.3	10.925	8.2	16.4	1.3	10.925
4/10/10	<QL	<QL	0.3	2.521	19.15	20.0	0.3	2.521
5/10/10	<QL	<QL	0.3	2.521	<QL	<QL	0.3	2.521
6/10/10	<QL	<QL	0.25	2.101	8.85	17.7	0.25	2.101
7/10/10	<QL	<QL	0.3	2.521	<QL	<QL	0.3	2.521
8/10/10	<QL	<QL	0.35	2.941	<QL	<QL	0.35	2.941
9/10/10	<QL	<QL	0.3	2.521	<QL	<QL	0.3	2.521
10/10/10	<QL	<QL	0.7	5.883	11.1	22.2	0.5	4.202
11/10/10	<QL	<QL	0.45	3.782	<QL	<QL	0.35	2.941
12/10/10	<QL	<QL	0.5	4.202	21.8	22.3	0.35	2.941
1/10/11	<QL	<QL	0.4	3.361	<QL	<QL	0.4	3.361
2/10/11	<QL	<QL	0.4	3.361	<QL	<QL	0.4	3.361
3/10/11	<QL	<QL	0.4	3.361	<QL	<QL	0.3	2.521
4/10/11	<QL	<QL	0.55	4.622	<QL	<QL	0.55	4.622
5/10/11	<QL	<QL	0.55	4.622	10.15	20.3	0.55	4.622

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 004

DMR Due Date	Nitrate / Nitrite		Orthophosphate		Flow, Influent		Total Phosphorus, Influent	
	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Maximum	Monthly Avg.	Monthly Avg.
	mg/L	lb/d	mg/L	lb/d	MGD	MGD	mg/L	lb/d
6/10/08	0.050	0.165	<QL	<QL	0.396	0.403	<QL	NULL
7/10/08	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
8/10/08	<QL	<QL	0.30	0.169	0.677	0.677	<QL	NULL
9/10/08	<QL	<QL	0.03	0.169	0.677	0.677	<QL	NULL
10/10/08	<QL	<QL	0.035	0.197	0.6768	0.6768	0.035	NULL
11/10/08	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
12/10/08	<QL	<QL	0.030	0.169	0.677	0.677	0.130	NULL
1/10/09	<QL	<QL	0.100	0.564	0.677	0.677	0.045	NULL
2/10/09	<QL	<QL	<QL	<QL	0.677	0.677	0.025	NULL
3/10/09	<QL	<QL	0.060	0.339	0.677	0.677	0.015	NULL
4/10/09	<QL	<QL	<QL	<QL	0.677	0.677	0.020	NULL
5/10/09	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
6/10/09	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
7/10/09	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
8/10/09	<QL	<QL	<QL	<QL	0.677	0.677	<QL	NULL
9/10/09	<QL	<QL	<QL	<QL	0.800	1.008	<QL	NULL
10/10/09	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
11/10/09	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
12/10/09	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
1/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
2/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
3/10/10	<QL	NULL	<QL	<QL	1.008	1.008	<QL	NULL
4/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
5/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
6/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
7/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
8/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
9/10/10	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
10/10/10	0.1	0.84	<QL	<QL	1.008	1.008	<QL	NULL
11/10/10	0.1	0.84	<QL	<QL	1.008	1.008	<QL	NULL
12/10/10	0.15	1.261	<QL	<QL	1.008	1.008	<QL	NULL
1/10/11	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
2/10/11	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
3/10/11	0.1	0.84	<QL	<QL	1.008	1.008	<QL	NULL
4/10/11	<QL	<QL	<QL	<QL	1.008	1.008	<QL	NULL
5/10/11	<QL	<QL	<QL	<QL	1.008	1.008	0.185	NULL

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 004

DMR Due Date	Total Nitrogen, Influent		Total Kjeldahl Nitrogen, Influent		Nitrate / Nitrite, Influent		Orthophosphate, Influent	
	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.	Monthly Avg.
	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d	mg/L	lb/d
6/10/08	<QL	NULL	0.5	NULL	0.55	NULL	<QL	NULL
7/10/08	1.2	NULL	1.2	NULL	<QL	NULL	<QL	NULL
8/10/08	0.90	NULL	0.80	NULL	0.10	NULL	0.30	NULL
9/10/08	0.65	NULL	0.65	NULL	<QL	NULL	0.03	NULL
10/10/08	0.450	NULL	0.300	NULL	0.050	NULL	0.035	NULL
11/10/08	0.250	NULL	0.250	NULL	0.050	NULL	<QL	NULL
12/10/08	0.250	NULL	0.250	NULL	<QL	NULL	0.030	NULL
1/10/09	<QL	NULL	<QL	NULL	<QL	NULL	<QL	NULL
2/10/09	0.750	NULL	0.750	NULL	<QL	NULL	<QL	NULL
3/10/09	0.300	NULL	0.300	NULL	<QL	NULL	<QL	NULL
4/10/09	0.350	NULL	0.350	NULL	<QL	NULL	<QL	NULL
5/10/09	0.250	NULL	0.250	NULL	<QL	NULL	<QL	NULL
6/10/09	0.250	NULL	0.30	NULL	<QL	NULL	<QL	NULL
7/10/09	0.450	NULL	0.45	NULL	<QL	NULL	<QL	NULL
8/10/09	0.1	NULL	0.1	NULL	<QL	NULL	<QL	NULL
9/10/09	0.3	NULL	0.1	NULL	<QL	NULL	<QL	NULL
10/10/09	0.2	NULL	0.2	NULL	<QL	NULL	<QL	NULL
11/10/09	0.2	NULL	<QL	NULL	<QL	NULL	<QL	NULL
12/10/09	0.25	NULL	0.25	NULL	<QL	NULL	<QL	NULL
1/10/10	0.35	NULL	0.35	NULL	<QL	NULL	<QL	NULL
2/10/10	0.55	NULL	<QL	NULL	<QL	NULL	<QL	NULL
3/10/10	0.55	NULL	0.55	NULL	<QL	NULL	<QL	NULL
4/10/10	0.15	NULL	0.15	NULL	<QL	NULL	<QL	NULL
5/10/10	0.35	NULL	0.15	NULL	<QL	NULL	<QL	NULL
6/10/10	0.3	NULL	0.3	NULL	<QL	NULL	<QL	NULL
7/10/10	0.25	NULL	0.25	NULL	<QL	NULL	<QL	NULL
8/10/10	0.35	NULL	0.35	NULL	<QL	NULL	<QL	NULL
9/10/10	0.5	NULL	0.5	NULL	<QL	NULL	<QL	NULL
10/10/10	0.65	NULL	0.6	NULL	<QL	NULL	<QL	NULL
11/10/10	0.55	NULL	0.45	NULL	0.1	NULL	<QL	NULL
12/10/10	0.45	NULL	0.35	NULL	0.1	NULL	<QL	NULL
1/10/11	0.4	NULL	0.4	NULL	<QL	NULL	<QL	NULL
2/10/11	0.4	NULL	0.4	NULL	<QL	NULL	<QL	NULL
3/10/11	0.25	NULL	0.25	NULL	<QL	NULL	<QL	NULL
4/10/11	0.4	NULL	0.4	NULL	<QL	NULL	<QL	NULL
5/10/11	0.45	NULL	0.45	NULL	<QL	NULL	<QL	NULL

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 999

DMR Due Date	Total Nitrogen, ML	Total Nitrogen, AL	Total Phosphorus, ML	Total Phosphorus, AL
	Maximum	Maximum	Maximum	Maximum
	lb/month	lb/year	lb/month	lb/year
6/10/08	-12.173	NR	0.00	NR
7/10/08	-160.283	NR	<QL	NR
8/10/08	-71.953	NR	-2.723	NR
9/10/08	-67.99	NR	15.896	NR
10/10/08	-34.481	NR	0.523	NR
11/10/08	10.368	NR	0.032	NR
12/10/08	9.392	-285.456	8.340	NR
1/10/09	8.746	NR	5.248	51.331
2/10/09	26.238	NR	0.000	NR
3/10/09	7.899	NR	-0.790	NR
4/10/09	-8.748	NR	1.750	NR
5/10/09	0.000	NULL	0	NR
6/10/09	69.987	NR	0	NULL
7/10/09	8.746	NR	0	NR
8/10/09	-17.5	NR	0	NR
9/10/09	-24.191	NR	0	NR
10/10/09	0	NR	0	NR
11/10/09	91.18	NR	0	NR
12/10/09	-12.606	NR	0	NR
1/10/10	26.051	26.05	0	0
2/10/10	169.335	NR	41.682	NR
3/10/10	176.478	NR	0.0	NR
4/10/10	39.077	NR	0.0	NR
5/10/10	-12.606	NULL	0.0	NULL
6/10/10	-13.026	NR	0.0	NR
7/10/10	12.606	NULL	0.0	NULL
8/10/10	0.0	NR	0.0	NR
9/10/10	-52.103	NULL	0.0	NULL
10/10/10	12.606	NULL	0.0	NULL
11/10/10	-26.051	NR	0.0	NR
12/10/10	12.606	NR	0.0	NR
1/10/11	0.0	318.920	0.0	41.682
2/10/11	NULL	NULL	NULL	NULL
3/10/11	35.296	NR	0.0	NR
4/10/11	39.077	NULL	0.0	NULL
5/10/11	25.211	NR	-46.641	NR

Facility Name: VIMS Gloucester Point
 Permit No: VA0071528
 Outfall: 999

DMR Due Date	Total Nitrogen, AL-YTD	Total Phos., AL-YTD
	Maximum	Maximum
	lb/year	lb/year
6/10/08	18.454	0.525
7/10/08	-141.829	0.525
8/10/08	-213.782	-2.207
9/10/08	-280.61	29.59
10/10/08	-313.971	37.706
11/10/08	-303.601	37.740
12/10/08	-294.20	46.08
1/10/09	-285.456	51.331
2/10/09	26.238	0.000
3/10/09	34.139	-0.790
4/10/09	25.391	0.960
5/10/09	25.391	0
6/10/09	95.378	0
7/10/09	103.845	0
8/10/09	86.35	0
9/10/09	62.157	0
10/10/09	62.157	0
11/10/09	153.34	0
12/10/09	140.732	0
1/10/10	166.783	0
2/10/10	169.335	41.682
3/10/10	345.812	41.682
4/10/10	384.889	41.682
5/10/10	372.284	41.682
6/10/10	359.258	41.682
7/10/10	371.864	41.682
8/10/10	371.864	41.682
9/10/10	319.761	41.682
10/10/10	332.366	41.682
11/10/10	306.315	41.682
12/10/10	318.920	41.682
1/10/11	NR	NR
2/10/11	NULL	NULL
3/10/11	35.296	0.0
4/10/11	74.373	0.0
5/10/11	99.548	-46.641

Attachment F

Water Quality Criteria Monitoring Summary

WATER QUALITY CRITERIA MONITORING SUMMARY

CHEMICAL	REQUIRED QUANTIFICATION LEVEL ⁽¹⁾	REPORTED RESULTS (µg/L)
METALS		
Antimony, dissolved	32,000	<1
Arsenic, dissolved	55	<5
Cadmium, dissolved	32	<5
Chromium III, dissolved ⁽³⁾	-----	<5 ⁽⁴⁾
Chromium VI, dissolved ⁽³⁾	880	<5
Copper, dissolved	7.4	<1
Lead, dissolved	190	<5
Mercury, dissolved	1.4	<0.2
Nickel, dissolved	59	<5
Selenium, dissolved	230	<1
Silver, dissolved	1.5	<0.4
Thallium, dissolved	(2)	<1
Zinc, dissolved	72	21
PESTICIDES / PCB'S		
Aldrin	0.05	<0.04
Chlordane	0.2	<0.2
Chlorpyrifos (synonym = Dursban)	(2)	<0.1
DDD	0.1	<0.1
DDE	0.1	<0.1
DDT	0.1	<0.04
Demeton	(2)	<10
Diazinon	(2)	<0.01
Dieldrin	0.1	<0.04
Alpha-Endosulfan	0.1	<0.04

CHEMICAL	REQUIRED QUANTIFICATION LEVEL ⁽¹⁾	REPORTED RESULTS (µg/L)
Beta-Endosulfan	0.1	<0.04
Endosulfan Sulfate	0.1	<0.04
Endrin	0.1	<0.04
Endrin Aldehyde	(2)	<0.5
Guthion	(2)	<1
Heptachlor	0.05	<0.04
Heptachlor Epoxide	(2)	<0.1
Hexachlorocyclohexane Alpha-BHC	(2)	<0.1
Hexachlorocyclohexane Beta-BHC	(2)	<0.1
Hexachlorocyclohexane Gamma-BHC or Lindane	(2)	<0.04
Kepone	(2)	<1
Malathion	(2)	<0.04
Methoxychlor	(2)	<0.1
Mirex	(2)	<0.2
Parathion	(2)	<0.1
PCB Total	7.0	<3.5
Toxaphene	5.0	<1
BASE NEUTRAL EXTRACTABLES		
Acenaphthene	10.0	<5
Anthracene	10.0	<5
Benzidine	(2)	<5
Benzo (a) anthracene	10.0	<5
Benzo (b) fluoranthene	10.0	<5
Benzo (k) fluoranthene	10.0	<5
Benzo (a) pyrene	10.0	<5
Bis 2-Chloroethyl Ether	(2)	<5
Bis 2-Chloroisopropyl Ether	(2)	<5

CHEMICAL	REQUIRED QUANTIFICATION LEVEL ⁽¹⁾	REPORTED RESULTS (µg/L)
Butyl benzyl phthalate	10.0	<5
2-Chloronaphthalene	(2)	<5
Chrysene	10.0	<5
Dibenz(a,h)anthracene	20.0	<5
Dibutyl phthalate (synonym = Di-n-Butyl Phthalate)	10.0	<5
1,2-Dichlorobenzene	10.0	<5
1,3-Dichlorobenzene	10.0	<5
1,4-Dichlorobenzene	10.0	<5
3,3-Dichlorobenzidine	(2)	<5
Diethyl phthalate	10.0	<5
Bis-2-ethylhexyl phthalate	10.0	<5
Dimethyl phthalate	(2)	<5
2,4-Dinitrotoluene	10.0	<5
1,2-Diphenylhydrazine	(2)	<5
Fluoranthene	10.0	<5
Fluorene	10.0	<5
Hexachlorobenzene	(2)	<5
Hexachlorobutadiene	(2)	<5
Hexachlorocyclopentadiene	(2)	<5
Hexachloroethane	(2)	<5
Indeno(1,2,3-cd)pyrene	20.0	<5
Isophorone	10.0	<5
Nitrobenzene	10.0	<5
N-Nitrosodimethylamine	(2)	<5
N-Nitrosodi-n-propylamine	(2)	<5
N-Nitrosodiphenylamine	(2)	<5
Pyrene	10.0	<5

CHEMICAL	REQUIRED QUANTIFICATION LEVEL ⁽¹⁾	REPORTED RESULTS (µg/L)
1,2,4-Trichlorobenzene	10.0	<5
VOLATILES		
Acrolein	(2)	<100
Acrylonitrile	(2)	<5
Benzene	10.0	<1
Bromoform	10.0	<1
Carbon Tetrachloride	10.0	<1
Chlorobenzene (synonym = monochlorobenzene)	50.0	<1
Chlorodibromomethane	10.0	<1
Chloroform	10.0	<1
Dichloromethane (synonym = methylene chloride)	20.0	<1
Dichlorobromomethane	10.0	<1
1,2-Dichloroethane	10.0	<1
1,1-Dichloroethylene	10.0	<1
1,2-trans-dichloroethylene	(2)	<1
1,2-Dichloropropane	(2)	<5
1,3-Dichloropropene	(2)	<5
Ethylbenzene	10.0	<1
Methyl Bromide	(2)	<5
1,1,2,2-Tetrachloroethane	(2)	<5
Tetrachloroethylene	10.0	<1
Toluene	10.0	<1
1,1,2-Trichloroethane	(2)	<5
Trichloroethylene	10.0	<1
Vinyl Chloride	10.0	<1
RADIONUCLIDES		
Beta Particle & Photon Activity (mrem/yr)	(2)	229 pCi/L 239 pCi/L

CHEMICAL	REQUIRED QUANTIFICATION LEVEL ⁽¹⁾	REPORTED RESULTS (µg/L)
Gross Alpha Particle Activity (pCi/L)	(2)	No Activity Detected
ACID EXTRACTABLES		
2-Chlorophenol	10.0	<5
2,4 Dichlorophenol	10.0	<5
2,4 Dimethylphenol	10.0	<5
2,4-Dinitrophenol	(2)	<5
2-Methyl-4,6-Dinitrophenol	(2)	<5
Nonylphenol	(2)	<3.2
Pentachlorophenol	50.0	<5
Phenol	10.0	<5
2,4,6-Trichlorophenol	10.0	<5
MISCELLANEOUS		
Ammonia as NH3-N	200	<200
Chlorine Produced Oxidant	(2)	<100
Chlorine, Total Residual	100	<100
Cyanide, Free	10.0	<5 ⁽⁵⁾
<i>Enterococcus</i> (N/CML)	(2)	1
Hydrogen Sulfide	(2)	<100 ⁽⁶⁾
Sulfate (mg/L)	(2)	1,310
Tributyltin ⁽⁷⁾	(2)	<30 ng/L
Hardness (mg/L as CaCO ₃)	(2)	3,500

FOOTNOTES:

- (1) Quantification level (QL) is defined as the lowest concentration used for the calibration of a measurement system when the calibration is in accordance with the procedures published for the required method.

The quantification levels indicated for the metals are actually Specific Target Values developed for this permit. The Specific Target Value is the approximate value that may initiate a wasteload allocation analysis. Target values are not wasteload allocations or effluent limitations. The Specific

Target Values are subject TO change based on additional information such as hardness data, receiving stream flow, and design flows.

Units for the quantification level are micrograms/liter unless otherwise specified.

- (2) The QL is at the discretion of the permittee. For any substances addressed in 40 CFR Part 136, the permittee shall use one of the approved methods in 40 CFR Part 136.
- (3) Both Chromium III and Chromium VI may be measured by the total chromium analysis. If the result of the total chromium analysis is less than or equal to the lesser of the Chromium III or Chromium VI method QL, the results for both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].
- (4) There are no established numerical aquatic life saltwater water quality criteria for dissolved Chromium III. The established human health – public water supply criterion (100 µg/L total chromium) is not applicable to the facility's receiving stream.
- (5) The permittee reported a censored concentration of <5 µg/L for total cyanide. Free cyanide is a component of total cyanide. Therefore, it is inferred that free cyanide is less than the DEQ established quantification level of 10.0 µg/L.
- (6) The permittee reported a censored concentration of <100 µg/L for sulfide. Hydrogen sulfide is a constituent of sulfide. Therefore, it is inferred that hydrogen sulfide is less than the permittee established quantification level of 100 µg/L.

Attachment G

MSTRANTI & STATS Analyses

MSTRANTI DATA SOURCE REPORT

VA0071528 – VIMS Gloucester Point

Stream Information	
Mean Hardness	Not applicable to saltwater discharges
90% Temperature (annual)	Calculated from data collected from monitoring station 8-YRK001.64
90% Temperature (winter)	Not applicable, a winter effluent tier has not been included in the permit
90% Maximum pH	Calculated from data collected from monitoring station 8-YRK001.64
10% Maximum pH	
Tier Designation	Flow Frequency Analysis
Tidal Zone	
Mean Salinity	Calculated from data collected from monitoring station 8-YRK001.64
Mixing Information	
Design Flow	Maximum 30-day Value, EPA Form 2C
Wasteload Allocation Multipliers	Established Agency Defaults
Effluent Information	
Mean Hardness	Not applicable to saltwater discharges
90% Temperature (annual)	Permit application, EPA Form 2C ⁽¹⁾
90% Temperature (winter)	Not applicable, a winter effluent tier has not been included in the permit
90% Maximum pH	Calculated from data provided on monthly discharge monitoring reports.
10% Maximum pH	
Discharge Flow	Maximum 30-day Value, EPA Form 2C

(1) The effluent annual temperature of 29.6°C is the maximum daily summer temperature reported in the permit renewal application. That temperature is taken as a reasonable approximation of the 90th percentile effluent temperature.

SALTWATER AND TRANSITION ZONES WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **VIMS Gloucester Point**
Receiving Stream: **York River**

Permit No.: **VA0071528**

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	NA	mg/l
90th % Temperature (Annual) =	26.4	(° C)
90th % Temperature (Winter) =	NA	(° C)
90th % Maximum pH =	8	
10th % Maximum pH =	7.4	
Tier Designation (1 or 2) =	1	
Early Life Stages Present Y/N =	Y	
Tidal Zone =	1	(1 = saltwater, 2 = transition zone)
Mean Salinity =	20.9	(g/kg)

Mixing Information

Design Flow (MGD)	1.008
Acute WLA multiplier	2
Chronic WLA multiplier	50
Human health WLA multiplier	50

Effluent Information

Mean Hardness (as CaCO3) =	NA	mg/L
90 % Temperature (Annual) =	29.6	(° C)
90 % Temperature (Winter) =	NA	(° C)
90 % Maximum pH =	8.3	SU
10 % Maximum pH =	7.9	SU
Discharge Flow =	1.008	MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Acenaphthene	0	--	--	9.9E+02	--	--	5.0E+04	--	--	--	--	--	--	--	--	5.0E+04
Acrolein	0	--	--	9.3E+00	--	--	4.7E+02	--	--	--	--	--	--	--	--	4.7E+02
Acrylonitrile ^C	0	--	--	2.5E+00	--	--	1.3E+02	--	--	--	--	--	--	--	--	1.3E+02
Aldrin ^C	0	1.3E+00	--	5.0E-04	2.6E+00	--	2.5E-02	--	--	--	--	--	--	2.6E+00	--	2.5E-02
Ammonia-N (mg/l) - Annual	0	#####	5.41E-01	--	4.70E+00	2.71E+01	--	--	--	--	--	--	--	4.70E+00	2.71E+01	--
Ammonia-N (mg/l) - Winter	0	#VALUE!	#VALUE!	--	#VALUE!	#VALUE!	--	--	--	--	--	--	--	#VALUE!	#VALUE!	--
Anthracene	0	--	--	4.0E+04	--	--	2.0E+06	--	--	--	--	--	--	--	--	2.0E+06
Antimony	0	--	--	6.4E+02	--	--	3.2E+04	--	--	--	--	--	--	--	--	3.2E+04
Arsenic	0	6.9E+01	3.6E+01	--	1.4E+02	1.8E+03	--	--	--	--	--	--	--	1.4E+02	1.8E+03	--
Benzene ^C	0	--	--	5.1E+02	--	--	2.6E+04	--	--	--	--	--	--	--	--	2.6E+04
Benzidine ^C	0	--	--	2.0E-03	--	--	1.0E-01	--	--	--	--	--	--	--	--	1.0E-01
Benzo (a) anthracene ^C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (b) fluoranthene ^C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (k) fluoranthene ^C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Benzo (a) pyrene ^C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Bis2-Chloroethyl Ether ^C	0	--	--	5.3E+00	--	--	2.7E+02	--	--	--	--	--	--	--	--	2.7E+02
Bis2-Chloroisopropyl Ether	0	--	--	6.5E+04	--	--	3.3E+06	--	--	--	--	--	--	--	--	3.3E+06
Bis2-Ethylhexyl Phthalate ^C	0	--	--	2.2E+01	--	--	1.1E+03	--	--	--	--	--	--	--	--	1.1E+03
Bromoform ^C	0	--	--	1.4E+03	--	--	7.0E+04	--	--	--	--	--	--	--	--	7.0E+04
Butylbenzylphthalate	0	--	--	1.9E+03	--	--	9.5E+04	--	--	--	--	--	--	--	--	9.5E+04
Cadmium	0	4.0E+01	8.8E+00	--	8.0E+01	4.4E+02	--	--	--	--	--	--	--	8.0E+01	4.4E+02	--
Carbon Tetrachloride ^C	0	--	--	1.6E+01	--	--	8.0E+02	--	--	--	--	--	--	--	--	8.0E+02
Chlordane ^C	0	9.0E-02	4.0E-03	8.1E-03	1.8E-01	2.0E-01	4.1E-01	--	--	--	--	--	--	1.8E-01	2.0E-01	4.1E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
TRC	0			--			--	--	--	--	--	--	--	--	--	--
Chlorine Prod. Oxidant	0	1.3E+01	7.5E+00	--	2.6E+01	3.8E+02	--	--	--	--	--	--	2.6E+01	3.8E+02	--	--
Chlorobenzene	0	--	--	1.6E+03	--	--	8.0E+04	--	--	--	--	--	--	--	8.0E+04	--
Chlorodibromomethane ^C	0	--	--	1.3E+02	--	--	6.5E+03	--	--	--	--	--	--	--	6.5E+03	--
Chloroform	0	--	--	1.1E+04	--	--	5.5E+05	--	--	--	--	--	--	--	5.5E+05	--
2-Chloronaphthalene	0	--	--	1.6E+03	--	--	8.0E+04	--	--	--	--	--	--	--	8.0E+04	--
2-Chlorophenol	0	--	--	1.5E+02	--	--	7.5E+03	--	--	--	--	--	--	--	7.5E+03	--
Chlorpyrifos	0	1.1E-02	5.6E-03	--	2.2E-02	2.8E-01	--	--	--	--	--	--	2.2E-02	2.8E-01	--	--
Chromium III	0			--			--	--	--	--	--	--	--	--	--	--
Chromium VI	0	1.1E+03	5.0E+01	--	2.2E+03	2.5E+03	--	--	--	--	--	--	2.2E+03	2.5E+03	--	--
Chrysene ^C	0	--	--	1.8E-02	--	--	9.0E-01	--	--	--	--	--	--	--	9.0E-01	--
Copper	0	9.3E+00	6.0E+00	--	1.9E+01	3.0E+02	--	--	--	--	--	--	1.9E+01	3.0E+02	--	--
Cyanide, Free	0	1.0E+00	1.0E+00	1.6E+04	2.0E+00	5.0E+01	8.0E+05	--	--	--	--	--	2.0E+00	5.0E+01	8.0E+05	--
DDD ^C	0	--	--	3.1E-03	--	--	1.6E-01	--	--	--	--	--	--	--	1.6E-01	--
DDE ^C	0	--	--	2.2E-03	--	--	1.1E-01	--	--	--	--	--	--	--	1.1E-01	--
DDT ^C	0	1.3E-01	1.0E-03	2.2E-03	2.6E-01	5.0E-02	1.1E-01	--	--	--	--	--	2.6E-01	5.0E-02	1.1E-01	--
Demeton	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	5.0E+00	--	--
Diazinon	0	8.2E-01	8.2E-01	--	1.6E+00	4.1E+01	--	--	--	--	--	--	1.6E+00	4.1E+01	--	--
Dibenz(a,h)anthracene ^C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	9.0E+00	--
1,2-Dichlorobenzene	0	--	--	1.3E+03	--	--	6.5E+04	--	--	--	--	--	--	--	6.5E+04	--
1,3-Dichlorobenzene	0	--	--	9.6E+02	--	--	4.8E+04	--	--	--	--	--	--	--	4.8E+04	--
1,4-Dichlorobenzene	0	--	--	1.9E+02	--	--	9.5E+03	--	--	--	--	--	--	--	9.5E+03	--
3,3-Dichlorobenzidine ^C	0	--	--	2.8E-01	--	--	1.4E+01	--	--	--	--	--	--	--	1.4E+01	--
Dichlorobromomethane ^C	0	--	--	1.7E+02	--	--	8.5E+03	--	--	--	--	--	--	--	8.5E+03	--
1,2-Dichloroethane ^C	0	--	--	3.7E+02	--	--	1.9E+04	--	--	--	--	--	--	--	1.9E+04	--
1,1-Dichloroethylene	0	--	--	7.1E+03	--	--	3.6E+05	--	--	--	--	--	--	--	3.6E+05	--
1,2-trans-dichloroethylene	0	--	--	1.0E+04	--	--	5.0E+05	--	--	--	--	--	--	--	5.0E+05	--
2,4-Dichlorophenol	0	--	--	2.9E+02	--	--	1.5E+04	--	--	--	--	--	--	--	1.5E+04	--
1,2-Dichloropropane ^C	0	--	--	1.5E+02	--	--	7.5E+03	--	--	--	--	--	--	--	7.5E+03	--
1,3-Dichloropropene ^C	0	--	--	2.1E+02	--	--	1.1E+04	--	--	--	--	--	--	--	1.1E+04	--
Dieldrin ^C	0	7.1E-01	1.9E-03	5.4E-04	1.4E+00	9.5E-02	2.7E-02	--	--	--	--	--	1.4E+00	9.5E-02	2.7E-02	--
Diethyl Phthalate	0	--	--	4.4E+04	--	--	2.2E+06	--	--	--	--	--	--	--	2.2E+06	--
2,4-Dimethylphenol	0	--	--	8.5E+02	--	--	4.3E+04	--	--	--	--	--	--	--	4.3E+04	--
Dimethyl Phthalate	0	--	--	1.1E+06	--	--	5.5E+07	--	--	--	--	--	--	--	5.5E+07	--
Di-n-Butyl Phthalate	0	--	--	4.5E+03	--	--	2.3E+05	--	--	--	--	--	--	--	2.3E+05	--
2,4 Dinitrophenol	0	--	--	5.3E+03	--	--	2.7E+05	--	--	--	--	--	--	--	2.7E+05	--
2-Methyl-4,6-Dinitrophenol	0	--	--	2.8E+02	--	--	1.4E+04	--	--	--	--	--	--	--	1.4E+04	--
2,4-Dinitrotoluene ^C	0	--	--	3.4E+01	--	--	1.7E+03	--	--	--	--	--	--	--	1.7E+03	--
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.1E-08	--	--	2.6E-06	--	--	--	--	--	--	--	2.6E-06	--
1,2-Diphenylhydrazine ^C	0	--	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	1.0E+02	--
Alpha-Endosulfan	0	3.4E-02	8.7E-03	8.9E+01	6.8E-02	4.4E-01	4.5E+03	--	--	--	--	--	6.8E-02	4.4E-01	4.5E+03	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Beta-Endosulfan	0	3.4E-02	8.7E-03	8.9E+01	6.8E-02	4.4E-01	4.5E+03	--	--	--	--	--	--	6.8E-02	4.4E-01	4.5E+03
Alpha + Beta Endosulfan	0	3.4E-02	8.7E-03	--	6.8E-02	4.4E-01	--	--	--	--	--	--	--	6.8E-02	4.4E-01	--
Endosulfan Sulfate	0	--	--	8.9E+01	--	--	4.5E+03	--	--	--	--	--	--	--	--	4.5E+03
Endrin	0	3.7E-02	2.3E-03	6.0E-02	7.4E-02	1.2E-01	3.0E+00	--	--	--	--	--	--	7.4E-02	1.2E-01	3.0E+00
Endrin Aldehyde	0	--	--	3.0E-01	--	--	1.5E+01	--	--	--	--	--	--	--	--	1.5E+01
Ethylbenzene	0	--	--	2.1E+03	--	--	1.1E+05	--	--	--	--	--	--	--	--	1.1E+05
Fluoranthene	0	--	--	1.4E+02	--	--	7.0E+03	--	--	--	--	--	--	--	--	7.0E+03
Fluorene	0	--	--	5.3E+03	--	--	2.7E+05	--	--	--	--	--	--	--	--	2.7E+05
Guthion	0	--	1.0E-02	--	--	5.0E-01	--	--	--	--	--	--	--	--	5.0E-01	--
Heptachlor ^C	0	5.3E-02	3.6E-03	7.9E-04	1.1E-01	1.8E-01	4.0E-02	--	--	--	--	--	--	1.1E-01	1.8E-01	4.0E-02
Heptachlor Epoxide ^C	0	5.3E-02	3.6E-03	3.9E-04	1.1E-01	1.8E-01	2.0E-02	--	--	--	--	--	--	1.1E-01	1.8E-01	2.0E-02
Hexachlorobenzene ^C	0	--	--	2.9E-03	--	--	1.5E-01	--	--	--	--	--	--	--	--	1.5E-01
Hexachlorobutadiene ^C	0	--	--	1.8E+02	--	--	9.0E+03	--	--	--	--	--	--	--	--	9.0E+03
Hexachlorocyclohexane Alpha-BHC ^C	0	--	--	4.9E-02	--	--	2.5E+00	--	--	--	--	--	--	--	--	2.5E+00
Hexachlorocyclohexane Beta- BHC ^C	0	--	--	1.7E-01	--	--	8.5E+00	--	--	--	--	--	--	--	--	8.5E+00
Hexachlorocyclohexane Gamma-BHC ^C (Lindane)	0	1.6E-01	--	1.8E+00	3.2E-01	--	9.0E+01	--	--	--	--	--	--	3.2E-01	--	9.0E+01
Hexachlorocyclopentadiene	0	--	--	1.1E+03	--	--	5.5E+04	--	--	--	--	--	--	--	--	5.5E+04
Hexachloroethane ^C	0	--	--	3.3E+01	--	--	1.7E+03	--	--	--	--	--	--	--	--	1.7E+03
Hydrogen Sulfide	0	--	2.0E+00	--	--	1.0E+02	--	--	--	--	--	--	--	--	1.0E+02	--
Indeno (1,2,3-cd) pyrene C	0	--	--	1.8E-01	--	--	9.0E+00	--	--	--	--	--	--	--	--	9.0E+00
Isophorone ^C	0	--	--	9.6E+03	--	--	4.8E+05	--	--	--	--	--	--	--	--	4.8E+05
Kepone	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Lead	0	2.4E+02	9.3E+00	--	4.8E+02	4.7E+02	--	--	--	--	--	--	--	4.8E+02	4.7E+02	--
Malathion	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	--	5.0E+00	--
Mercury	0	1.8E+00	9.4E-01	--	3.6E+00	4.7E+01	--	--	--	--	--	--	--	3.6E+00	4.7E+01	--
Methyl Bromide	0	--	--	1.5E+03	--	--	7.5E+04	--	--	--	--	--	--	--	--	7.5E+04
Methylene Chloride ^C	0	--	--	5.9E+03	--	--	3.0E+05	--	--	--	--	--	--	--	--	3.0E+05
Methoxychlor	0	--	3.0E-02	--	--	1.5E+00	--	--	--	--	--	--	--	--	1.5E+00	--
Mirex	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	0.0E+00	--
Nickel	0	7.4E+01	8.2E+00	4.6E+03	1.5E+02	4.1E+02	2.3E+05	--	--	--	--	--	--	1.5E+02	4.1E+02	2.3E+05
Nitrobenzene	0	--	--	6.9E+02	--	--	3.5E+04	--	--	--	--	--	--	--	--	3.5E+04
N-Nitrosodimethylamine ^C	0	--	--	3.0E+01	--	--	1.5E+03	--	--	--	--	--	--	--	--	1.5E+03
N-Nitrosodiphenylamine ^C	0	--	--	6.0E+01	--	--	3.0E+03	--	--	--	--	--	--	--	--	3.0E+03
N-Nitrosodi-n-propylamine ^C	0	--	--	5.1E+00	--	--	2.6E+02	--	--	--	--	--	--	--	--	2.6E+02
Nonylphenol	0	7.0E+00	1.7E+00	--	1.4E+01	8.5E+01	--	--	--	--	--	--	--	1.4E+01	8.5E+01	--
Parathion	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCB Total ^C	0	--	3.0E-02	6.4E-04	--	1.5E+00	3.2E-02	--	--	--	--	--	--	--	1.5E+00	3.2E-02
Pentachlorophenol ^C	0	1.3E+01	7.9E+00	3.0E+01	2.6E+01	4.0E+02	1.5E+03	--	--	--	--	--	--	2.6E+01	4.0E+02	1.5E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			Most Limiting Allocations		
		Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH
Phenol	0	--	--	8.6E+05	--	--	4.3E+07	--	--	--	--	--	--	--	--	4.3E+07
Phosphorus (Elemental)	0	--	1.0E-01	--	--	5.0E+00	--	--	--	--	--	--	--	5.0E+00	--	--
Pyrene	0	--	--	4.0E+03	--	--	2.0E+05	--	--	--	--	--	--	--	--	2.0E+05
Radionuclides Beta and Photon Activity (mrem/yr)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	0	2.9E+02	7.1E+01	4.2E+03	5.8E+02	3.6E+03	2.1E+05	--	--	--	--	--	--	5.8E+02	3.6E+03	2.1E+05
Silver	0	1.9E+00	--	--	3.8E+00	--	--	--	--	--	--	--	--	3.8E+00	--	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	4.0E+01	--	--	2.0E+03	--	--	--	--	--	--	--	--	2.0E+03
Tetrachloroethylene ^C	0	--	--	3.3E+01	--	--	1.7E+03	--	--	--	--	--	--	--	--	1.7E+03
Thallium	0	--	--	4.7E-01	--	--	2.4E+01	--	--	--	--	--	--	--	--	2.4E+01
Toluene	0	--	--	6.0E+03	--	--	3.0E+05	--	--	--	--	--	--	--	--	3.0E+05
Toxaphene ^C	0	2.1E-01	2.0E-04	2.8E-03	4.2E-01	1.0E-02	1.4E-01	--	--	--	--	--	--	4.2E-01	1.0E-02	1.4E-01
Tributyltin	0	4.2E-01	7.4E-03	--	8.4E-01	3.7E-01	--	--	--	--	--	--	--	8.4E-01	3.7E-01	--
1,2,4-Trichlorobenzene	0	--	--	7.0E+01	--	--	3.5E+03	--	--	--	--	--	--	--	--	3.5E+03
1,1,2-Trichloroethane ^C	0	--	--	1.6E+02	--	--	8.0E+03	--	--	--	--	--	--	--	--	8.0E+03
Trichloroethylene ^C	0	--	--	3.0E+02	--	--	1.5E+04	--	--	--	--	--	--	--	--	1.5E+04
2,4,6-Trichlorophenol ^C	0	--	--	2.4E+01	--	--	1.2E+03	--	--	--	--	--	--	--	--	1.2E+03
Vinyl Chloride ^C	0	--	--	2.4E+01	--	--	1.2E+03	--	--	--	--	--	--	--	--	1.2E+03
Zinc	0	9.0E+01	8.1E+01	2.6E+04	1.8E+02	4.1E+03	1.3E+06	--	--	--	--	--	--	1.8E+02	4.1E+03	1.3E+06

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- For transition zone waters, spreadsheet prints the lesser of the freshwater and saltwater water quality criteria.
- Regular WLA = (WQC x WLA multiplier) - (WLA multiplier - 1)(background conc.)
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- Antideg. WLA = (Antideg. Baseline)(WLA multiplier) - (WLA multiplier - 1)(background conc.)

Site Specific	
<u>Metal</u>	<u>Target Value (SSTV)</u>
Antimony	3.2E+04
Arsenic III	5.5E+01
Cadmium	3.2E+01
Chromium III	#VALUE!
Chromium VI	8.8E+02
Copper	7.4E+00
Lead	1.9E+02
Mercury	1.4E+00
Nickel	5.9E+01
Selenium	2.3E+02
Silver	1.5E+00
Zinc	7.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

8/4/2011 8:31:02 AM

Facility = VIMS Gloucester Point
Chemical = Dissolved Zinc - Attachment A
Chronic averaging period = 4
WLAa = 180 ug/L
WLAc = 4100 ug/L
Q. L. = 0.1 ug/L
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 21 ug/L
Variance = 158.76
C. V. = 0.6
97th percentile daily values = 51.1017 ug/L
97th percentile 4 day average = 34.9395 ug/L
97th percentile 30 day average = 25.3271 ug/L
< Q. L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

21 ug/L

Attachment H

2007 Projected Nutrient Data



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Gerard Seeley, Jr.
Regional Director

November 1, 2007

John Wells, Ph.D.
Dean and Director
Virginia Institute of Marine Science
P.O. Box 1346
Gloucester Point, VA 23062

Re: VPDES Permit No. VA0071528, Virginia Inst. Of Marine Science

Dear Dr. Wells:

This is in response to a request from VIMS to the DEQ Director concerning the status of nutrient GP coverage. VIMS staff recently submitted nutrient data to DEQ for review. The determination was made that the data indicate the net loads to be below the threshold for requiring general permit coverage. Since the need for a nutrient general permit was not triggered, the question of permitted design capacity is not at issue at this time.

An individual permit application was also submitted to include the discharge from the Seawater Research Laboratory with the existing VPDES permit. It was reviewed by DEQ staff and the comments generated are in the process of being addressed by VIMS staff. Once the application is complete, DEQ can proceed with drafting a permit and complete the permitting process.

Please call me at (804) 527-5027 or email me at dmmosca@deq.virginia.gov if you have any questions about your application.

Sincerely,

A handwritten signature in cursive script that reads "Denise M. Mosca".

Denise M. Mosca
Environmental Specialist II

cc: Kyle Winter, OWPS
Jim Brister, VIMS

From: Kyle Winter

To: Denise Mosca

Subj: VIMS

Pgs: 6

Winter, Kyle

From: James Brister [jbrister@vims.edu]
Sent: Friday, September 07, 2007 2:50 PM
To: Winter, Kyle
Subject: Current and Future VIMS Discharge Footprints



VIMS Total Current
and Future ...

Good afternoon Kyle,

Please find the attached file with the net and gross discharge estimates from VIMS under various scenarios. If you need further explanation of how the figures were calculated, just give me a call. Let me know if you require any other information from us.

Cheers,
Jim Brister

--
James E. Brister
Director
Seawater Research Laboratory
Virginia Institute of Marine Science
1208 Greate Road
Gloucester Point, Virginia 23062
(804) 684-7255 (Office)
(804) 684-7450 (FAX)
(757) 637-7815 (Home)
jbrister@vims.edu

	TN (lbs/yr)	TP (lbs/yr)
Current VIMS Gross Footprint	1,937.6	313.3
Current VIMS Net Footprint (Estimated)	1,067.6	138.5
Proposed SRL Gross Footprint (at Max Capacity)	1,198.0	206.0
Proposed SRL Net Footprint (Estimated at Max Capacity)	660.1	157.9
Proposed Future Total VIMS Gross Footprint	2,578.6	452.8
Proposed Future Total VIMS Net Footprint	1,420.8	252.7

All gross estimates are based on mean effluent concentrations over the last seven months plus 2/13/2006 X the appropriate flow rate X 8.3438 X 365.

Net TN values estimated by taking the worst case average of intake TN / outfall TN for the previous seven months plus 2/13/2006. (55.1%)

Net TP values estimated by taking the highest discharge concentration over the last seven months and multiplying that concentration X the appropriate total flow rate X 8.3438 X 365.

NOTE: Actual net TP value for the time period in question is a negative value.

Cheers,
Jim Brister

James E. Brister
Director
Seawater Research Laboratory
Virginia Institute of Marine Science
1208 Create Road
Gloucester Point, Virginia 23062
(804) 684-7253 (Office)
(804) 684-7450 (FAX)
(757) 637-7815 (Home)
jbrister@vims.edu

VIMS Outfall Flowrates

8/20/2007

09/18/2007 08:23 FAX 8046984032

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Outfall	Analytical Services Identifier	Flow, GPM	Flow, MGD	Total Nitrogen, mg/l	Total Phosphorus, mg/l	TSS, mg/l	Total Nitrogen, lbs/year	Total Phosphorus, lbs/year	TSS, lbs/year		
F Setting Tank A	A	18.5	0.027	0.4241	0.0675	17.2	34.4	5.5	1,395.5		
F Setting Tank B	B	14.8	0.021	0.3922	0.0634	10.4	25.5	4.1	675.0		
F Setting Tank C	C	12.9	0.019	0.4532	0.1019	15.5	25.6	5.8	876.9		
F Setting Tank D	D	21.1	0.030	0.4583	0.0894	16.8	42.4	8.3	1,554.6		
Emerged Aquatic Vegetation	E	84.3	0.121	0.6679	0.0990	46.8	246.9	36.6	17,301.9		
ster Hatchery	F	289.2	0.416	0.5303	0.0877	19.9	672.6	111.2	25,238.9		
MS Setting Tanks C,B,K,J,L,I	G	26.9	0.039	0.4671	0.0687	12.7	55.1	8.1	1,498.2		
MS Lab	I	19.9	0.029	0.6512	0.0859	17.0	56.8	7.5	1,483.6		
dius Lab	J & K	90.1	0.130	0.4859	0.0566	7.8	192.0	22.4	3,082.0		
ry Lab	L	72.0	0.104	0.4808	0.0491	6.7	151.8	15.5	2,115.6		
d Hall	M	62.0	0.089	0.4910	0.0581	7.4	133.5	15.8	2,012.1		
rine Culture	N	78.0	0.112	0.5106	0.0611	14.0	174.7	20.9	4,789.0		
termen's Aquarium	O	0.8	0.001	0.4992	0.0559	9.0	1.8	0.2	31.6		
SUBTOTALS		790.5	1.138				1,813.1	261.8	62,054.8		
fish Greenhouse (calculated)							124.6	51.5			
				TN Mean	TP Mean		1,937.6	313.3	62,054.8		
				0.5009	0.0726						
imated for SRL							1,198.0	206.0	9,936.0		
TN											
		Intake	Outfall	Net Increase			Intake	Outfall	Net Increase		
	Dec-06	0.4	0.5	0.10	80.0%		Dec-06	0.4	0.5	0.10	80.0%
	Jan-07	0.1	0.4	0.30	25.0%		Jan-07	0.1	0.4	0.30	25.0%
	Feb-07	0.6	0.5	-0.10	120.0%		Feb-07	0.6	0.5	-0.10	120.0%
	Mar-07	0.5	0.6	0.10	83.3%		Mar-07	0.5	0.6	0.10	83.3%
	Apr-07	0.4	0.4	0.00	100.0%		Apr-07	0.4	0.4	0.00	100.0%
	May-07	0.4	0.7	0.30	57.1%		May-07	0.4	0.7	0.30	57.1%
	Jun-07	0.4	0.5	0.10	80.0%		Jun-07	0.4	0.5	0.10	80.0%
	Mean	0.40	0.51	0.11	77.8%		DEQ 2/3/2006	0.12	1.7	1.58	7.1%
							Mean	0.37	0.66	0.30	55.1%
TP											
		Intake	Outfall	Net Increase			Intake	Outfall	Net Increase		
	Dec-06	2.8	0	-2.80	#DIV/0!		Dec-06	2.8	0	-2.80	#DIV/0!
	Jan-07	0	0	0.00	#DIV/0!		Jan-07	0	0	0.00	#DIV/0!
	Feb-07	0	0	0.00	#DIV/0!		Feb-07	0	0	0.00	#DIV/0!
	Mar-07	0	0	0.00	#DIV/0!		Mar-07	0	0	0.00	#DIV/0!
	Apr-07	0	0	0.00	#DIV/0!		Apr-07	0	0	0.00	#DIV/0!
	May-07	0	0	0.00	#DIV/0!		May-07	0	0	0.00	#DIV/0!

VIMS FOOTPRINT

VIMS Outfall Flowrates

8/20/2007

09/18/2007 08:23 FAX 8046984032

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006

Jun-07	0.1	0	-0.10	#DIV/0!	Jun-07	0.1	0	-0.10	#DIV/0!
Mean	0.41	0.00	-0.41	#DIV/0!	DEQ 2/3/2006	0.03	0.04	0.01	75.0%
					Mean	0.37	0.01	-0.36	7325.0%

Attachment I

Whole Effluent Toxicity (WET) Memorandum



MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Regional Office*

4949–A Cox Road

Glen Allen, Virginia 23060

(804) 527-5020

TO: Deborah DeBiasi, Whole Effluent Toxicity (WET) Program, OWP&CA
FROM: Drew Hammond, Water Permit Writer, PRO
DATE: July 20, 2011
SUBJECT: VPDES Permit No. VA0071528 – VIMS Gloucester Point
WET Testing Data Review
COPIES: File

Facility Name: VIMS Gloucester Point
Permit Number: VA0071528
Receiving Stream: York River (Seawater Research Laboratory – Outfall 004)
Facility SIC: 0273 (Animal Aquaculture)
0921 (Fish Hatchery)
8221 (Colleges, Universities, and Professional Schools)
8733 (Noncommercial Research Organizations)

Acute In-Stream
Waste Concentration
(IWC_{acute}): 50% (default tidal dilution ratio of 2:1 utilized)

Chronic In-Stream
Waste Concentration
($IWC_{chronic}$): 2% (default tidal dilution ratio of 50:1 utilized)

Background

The 2006 Virginia Pollutant Discharge Elimination System (VPDES) permit for VIMS – Gloucester Point is in the process of reissuance. The 2006 permit authorized the discharge of treated industrial wastewaters from Byrd Hall (Outfall 003) into the York River in Gloucester County, Virginia. The 2006 permit was modified in 2008 to also authorize the discharge of treated industrial wastewaters from the proposed Seawater Research Laboratory (Outfall 004) into the York River. After construction of the Seawater Research Laboratory (SRL), Byrd Hall was demolished along with its permitted outfall (Outfall 003). The existing VPDES permit expires on November 5, 2011.

Permit Requirements

The expiring VPDES permit contains Whole Effluent Toxicity (WET) testing for Outfall 003 and Outfall 004. More specifically, the WET testing special condition required annual acute and chronic monitoring for Outfall 003 utilizing *Americanmysis bahia*. The WET testing special condition also required quarterly acute and chronic monitoring for Outfall 004 utilizing *Americanmysis bahia* and *Cyprinodon variegatus*.

For both outfalls the special condition set the acute criteria of NOAEC equal to 100% (TU_a of 1.00) and the chronic criteria of NOEC equal to 17% (TU_c of 5.88).

Data Summary

Since Outfall 003 (Byrd Hall) has been permanently taken offline, this data review does not include the results of the annual testing for that outfall. However, this data review does include the results of the 12 sets of quarterly testing for Outfall 004. All WET testing was performed by Coastal Bioanalysts, Inc. (CBI) and no quality control problems were found.

Table 1. Results of the Acute WET Tests for *Americanmysis bahia* – Outfall 004

Test Date	NOAEC	% Survival in 100% Effluent	Laboratory
9/23/2008	100	100	CBI
12/2/2007	100	100	CBI
3/24/2009	100	100	CBI
5/12/2009	100	100	CBI
8/11/2009	100	100	CBI
11/10/2009	100	100	CBI
3/16/2010	100	100	CBI
5/11/2010	100	100	CBI
7/6/2010	100	100	CBI
9/28/2010	100	100	CBI
2/8/2011	100	100	CBI
5/3/2011	100	100	CBI

Table 2. Results of the Acute WET Tests for *Cyprinodon variegatus* – Outfall 004

Test Date	NOAEC	% Survival in 100% Effluent	Laboratory
9/23/2008	100	100	CBI
12/2/2007	100	100	CBI
3/24/2009	100	100	CBI
5/12/2009	100	100	CBI
8/11/2009	100	100	CBI
11/10/2009	100	100	CBI
3/16/2010	100	100	CBI
5/11/2010	100	100	CBI
7/6/2010	100	100	CBI
9/28/2010	100	100	CBI
2/8/2011	100	100	CBI
5/3/2011	100	100	CBI

Table 3. Results of the Chronic WET Tests for *Americanmysis bahia* – Outfall 004

Test Date	NOEC Survival	NOEC Biomass	NOEC Fecundity	Laboratory
9/23/2008	100	100	NA	CBI
12/2/2007	100	100	100	CBI
3/24/2009	100	100	NA	CBI
5/12/2009	100	100	NA	CBI
8/11/2009	100	100	NA	CBI
11/10/2009	100	100	NA	CBI
3/16/2010	100	100	100	CBI
5/11/2010	100	100	NA	CBI
7/6/2010	100	100	100	CBI
9/28/2010	100	100	NA	CBI
2/8/2011	100	100	NA	CBI
5/3/2011	100	100	100	CBI

Table 4. Results of the Chronic WET Tests for *Cyprinodon variegates* – Outfall 004

Test Date	NOEC Survival	NOEC Biomass	Laboratory
9/23/2008	100	17	CBI
12/2/2007	100	100	CBI
3/24/2009	100	100	CBI
5/12/2009	100	100	CBI
8/11/2009	100	34	CBI
11/10/2009	100	100	CBI
3/16/2010	100	100	CBI
5/11/2010	100	100	CBI
7/6/2010	100	100	CBI
9/28/2010	100	100	CBI
2/8/2011	100	100	CBI
5/3/2011	100	100	CBI

Conclusions & Recommendations

The results of the acute and chronic WET tests for Outfall 004 are summarized in Table 1, 2, 3, and 4 above. The Seawater Research Laboratory's effluent met the WET testing special condition of acute NOAEC equal to 100% in 100% of the tests conducted during 2008 to 2011. In addition, the effluent met the WET testing special condition of chronic NOEC equal to 17% in 100% of the tests conducted during 2008 to 2011.

The 2008 permit modification required the permittee to perform quarterly acute WET testing for Outfall 004 using *Americanmysis bahia* and *Cyprinodon variegates*. Since all acute WET testing results met the special condition endpoint of NOAEC equal to 100%, DEQ staff recommends discontinuing the required acute WET testing with the 2011 permit reissuance. The 2008 permit modification also required the permittee to perform quarterly chronic WET testing for Outfall 004 using *Americanmysis bahia* and *Cyprinodon variegates*. Since all chronic WET testing results met the special condition endpoint of NOEC equal to 17%, DEQ staff recommends a reduced chronic WET testing frequency (semi-annually) with the 2011 permit reissuance. Semi-annual chronic WET testing using *Americanmysis bahia* and *Cyprinodon variegates* will allow DEQ staff to further evaluate the effluent's potential toxic effect on aquatic life.

The revised WET testing permit section to be included in the 2011 permit reissuance is as follows:

C. Whole Effluent Toxicity (WET) Testing – Outfall 004

1. In accordance with the schedule below, the permittee shall perform semi-annual toxicity testing on Outfall 004 using 24-hour flow-proportioned composite samples for the duration of the permit.

The chronic tests to use are:

Chronic 7-Day Survival, Growth and Fecundity Static Renewal Test with *Americamysis bahia*
Chronic 7-Day Survival and Growth Static Renewal Test with *Cyprinodon variegates*

These chronic tests shall be conducted in such a manner and at sufficient dilutions (minimum of five dilutions, derived geometrically) to determine the “No Observed Effect Concentration” (NOEC) for survival and reproduction or growth. Results which cannot be quantified (i.e., a “less than” NOEC value) are not acceptable, and a retest will have to be performed. A retest of a non-acceptable test must be performed during the same compliance period as the test it is replacing. Express the test NOEC as TU_c (Chronic Toxic Units), by dividing $100/NOEC$ for DMR reporting. Report the LC_{50} at 48 hours and the IC_{25} with the NOEC's in the test report.

The test dilutions should be able to determine compliance with the following endpoint:

Chronic NOEC of 17% equivalent to a TU_c of 5.88

2. The permittee may provide additional samples to address data variability. These data shall be reported and may be included in the evaluation of effluent toxicity. Test procedures and reporting shall be in accordance with the WET testing methods cited in 40 CFR 136.3.
3. The test data will be evaluated by STATS.EXE for reasonable potential at the conclusion of the permit term. The data may be evaluated sooner if requested by the permittee, or if toxicity has been noted. Should evaluation of the data indicate that a limit is needed, a WET limit and compliance schedule will be required and the toxicity tests of Part I.C.1 may be discontinued.

If after evaluating the data, it is determined that no limit is needed, the permittee shall continue chronic toxicity testing (both species) of the outfall semi-annually, as on the reporting schedule in Part I.C.5.

4. The permit may be modified or revoked and reissued to include pollutant specific limits in lieu of a WET limit should it be demonstrated that toxicity is due to specific parameters. The pollutant specific limits must control the toxicity of the effluent.

5. The permittee shall submit one (1) copy of each toxicity test report in accordance with the following schedule:

Test Period	Test Period Dates	Submit Test Report with DMR
Semi-Annual 1	Jan 1 – Jun 30, 2012	Jul 10, 2012
Semi-Annual 2	Jul 1 – Dec 31, 2012	Jan 10, 2013
Semi-Annual 3	Jan 1 – Jun 30, 2013	Jul 10, 2013
Semi-Annual 4	Jul 1 – Dec 31, 2013	Jan 10, 2014
Semi-Annual 5	Jan 1 – Jun 30, 2014	Jul 10, 2014
Semi-Annual 6	Jul 1 – Dec 31, 2014	Jan 10, 2015
Semi-Annual 7	Jan 1 – Jun 30, 2015	Jul 10, 2015
Semi-Annual 8	Jul 1 – Dec 31, 2015	Jan 10, 2016
Semi-Annual 9	Jan 1 – Jun 30, 2016	Jul 10, 2016
Semi-Annual 10	Jul 1 – Dec 31, 2016	Jan 10, 2016

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Spreadsheet for determination of WET test endpoints or WET limits														
4	Excel 97				Acute Endpoint/Permit Limit			Use as LC₅₀ in Special Condition, as TUa on DMR							
5	Revision Date: 01/10/05				ACUTE 100% = NOAEC			LC ₅₀ = NA % Use as NA TUa							
6	File: WETLIM10.xls				ACUTE WLA _a 0.6			Note: Inform the permittee that if the mean of the data exceeds this TUa: 1.0 a limit may result using WLA.EXE							
7	(MIX.EXE required also)														
11					Chronic Endpoint/Permit Limit			Use as NOEC in Special Condition, as TUc on DMR							
13					CHRONIC 6.000000147 TU _c			NOEC = 17 % Use as 5.88 TU _c							
14					BOTH* 6.000000147 TU _c			NOEC = 17 % Use as 5.88 TU _c							
15					AML 6.000000147 TU _c			NOEC = 17 % Use as 5.88 TU _c							
15	Enter data in the cells with blue type:														
17	Entry Date: 07/20/11				ACUTE WLA _{a,c} 6			Note: Inform the permittee that if the mean of the data exceeds this TUc: 2.46566808							
18	Facility Name: VIMS				CHRONIC WLA _c 50			* Both means acute expressed as chronic							
19	VPDES Number: VA0071528														
20	Outfall Number: 4														
21					% Flow to be used from MIX.EXE			Difuser /modeling study?							
22	Plant Flow: 1.008 MGD							Enter Y/N Y							
23	Acute 1Q10: MGD							Acute 2 :1							
24	Chronic 7Q10: MGD							Chronic 50 :1							
26	Are data available to calculate CV? (Y/N)				N (Minimum of 10 data points, same species, needed)			Go to Page 2							
27	Are data available to calculate ACR? (Y/N)				N (NOEC<LC50, do not use greater/less than data)			Go to Page 3							
30	IWC _a 50 %		Plant flow/plant flow + 1Q10		NOTE: If the IWC _a is >33%, specify the NOAEC = 100% test/endpoint for use										
31	IWC _c 2 %		Plant flow/plant flow + 7Q10												
33	Dilution, acute 2		100/IWC _a												
34	Dilution, chronic 50		100/IWC _c												
36	WLA _a 0.6		Instream criterion (0.3 TUa) X's Dilution, acute												
37	WLA _c 50		Instream criterion (1.0 TUc) X's Dilution, chronic												
38	WLA _{a,c} 6		ACR X's WLA _a - converts acute WLA to chronic units												
40	ACR -acute/chronic ratio 10		LC50/NOEC (Default is 10 - if data are available, use tables Page 3)												
41	CV-Coefficient of variation 0.6		Default of 0.6 - if data are available, use tables Page 2)												
42	Constants eA 0.4109447		Default = 0.41												
43	eB 0.6010373		Default = 0.60												
44	eC 2.4334175		Default = 2.43												
45	eD 2.4334175		Default = 2.43 (1 samp)		No. of samples: 1			**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.							
47	LTA _{a,c} 2.4656682		WLA _{a,c} X's eA												
48	LTA _c 30.051865		WLA _c X's eB												
49	MDL** with LTA _{a,c} 6.000000147		TU _c NOEC = 16.666666 (Protects from acute/chronic toxicity)					Rounded NOEC's %							
50	MDL** with LTA _c 73.1287342		TU _c NOEC = 1.367452 (Protects from chronic toxicity)					NOEC = 17 %							
51	AML with lowest LTA 6.000000147		TU _c NOEC = 16.666666 Lowest LTA X's eD					NOEC = 2 %							
52	IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a														
55	MDL with LTA _{a,c} 0.600000015		TU _a LC50 = 166.666663 %		Use NOAEC=100%			Rounded LC50's %							
56	MDL with LTA _c 7.31287342		TU _a LC50 = 13.674515 %					LC50 = NA %							
57															
58															

7/20/2011 8:22:13 AM

Facility = VIMS Gloucester Point
Chemical = Chronic - C. variegatus
Chronic averaging period = 4
WLAa = 6
WLAc = 50
Q. L. = 1
samples/mo. = 1
samples/wk. = 1

Summary of Statistics:

observations = 12
Expected Value = 1.49518
Variance = .872488
C. V. = 0.624720
97th percentile daily values = 3.73308
97th percentile 4 day average = 2.53356
97th percentile 30 day average = 1.81596
< Q. L. = 0
Model used = lognormal

No Limit is required for this material

The data are:

5.88
1
1
1
2.94
1
1
1
1
1
1
1
1

Hammond, Andrew (DEQ)

From: DeBiasi, Deborah (DEQ)
Sent: Friday, October 28, 2011 12:35 PM
To: Hammond, Andrew (DEQ)
Subject: RE: VA0071528 - VIMS Gloucester Point - WET Testing Data Review

Drew,

I concur with your assessment of the WET data and WET testing requirements for this issuance. Good job!

Deborah L. DeBiasi, Virginia DEQ
Office of Water Permit and Compliance Assistance Programs

Email: Deborah.DeBiasi@deq.virginia.gov

PH: 804-698-4028

From: Hammond, Andrew (DEQ)
Sent: Friday, October 28, 2011 12:27 PM
To: DeBiasi, Deborah (DEQ)
Subject: VA0071528 - VIMS Gloucester Point - WET Testing Data Review

Hi Deborah,

Here's another one for you. You gave me verbal concurrence on this memo back in July. Will you please provide written concurrence so that I can include it in the fact sheet.

Thanks,
Drew

Andrew J. Hammond II, P.E.
Water Permit Writer
Dept. of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
Ph: 804.527.5048
Fx: 804.527.5106

Andrew.Hammond@deq.virginia.gov

This email should not be considered a legal opinion or case decision as defined by the Administrative Process Act, Code of Virginia § 2.2-4000 *et seq.*

From: Hammond, Andrew (DEQ)
Sent: Wednesday, July 20, 2011 8:31 AM
To: DeBiasi, Deborah (DEQ)
Subject: VA0071528 - VIMS Gloucester Point - WET Testing Data Review

Hi Deborah,

Attached is my WET testing data review (with proposed 2011 permit language) for VIMS for your review and concurrence.

Many thanks for taking the time to further explain WET testing on 7/8/2011.

Drew

Andrew J. Hammond II, P.E.
Water Permit Writer
Dept. of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
Ph: 804.527.5048
Fx: 804.527.5106
Andrew.Hammond@deq.virginia.gov

This email should not be considered a legal opinion or case decision as defined by the Administrative Process Act, Code of Virginia § 2.2-4000 *et seq.*

Attachment J

NPDES Permit Rating Work Sheet

NPDES PERMIT RATING WORK SHEET

NPDES No. VA0071528

- Regular Addition
- Discretionary Addition
- Score change, but no status change
- Deletion

Facility Name: VIMS Gloucester Point

County: Gloucester County

Receiving Water: York River

Reach Number: _____

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate

YES; score is 600 (stop here) NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

- YES; score is 700 (stop here)
 NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: 0273
 Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Other SIC Codes: 0921, 8221, 8733

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input checked="" type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 7

Total Points Factor 1: 35

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A ? Wastewater Flow Only Considered

Wastewater Type (See Instructions)	Code	Points
Type I: Flow < 5 MGD <input type="checkbox"/>	11	0
Flow 5 to 10 MGD <input type="checkbox"/>	12	10
Flow > 10 to 50 MGD <input type="checkbox"/>	13	20
Flow > 50 MGD <input type="checkbox"/>	14	30
Type II: Flow < 1 MGD <input type="checkbox"/>	21	10
Flow 1 to 5 MGD <input checked="" type="checkbox"/>	22	20
Flow > 5 to 10 MGD <input type="checkbox"/>	23	30
Flow > 10 MGD <input type="checkbox"/>	24	50
Type III: Flow < 1 MGD <input type="checkbox"/>	31	0
Flow 1 to 5 MGD <input type="checkbox"/>	32	10
Flow > 5 to 10 MGD <input type="checkbox"/>	33	20
Flow > 10 MGD <input type="checkbox"/>	34	30

Section B ? Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 % <input type="checkbox"/>	41	0
	10 % to < 50 % <input type="checkbox"/>	42	10
	> 50 % <input type="checkbox"/>	43	20
Type II:	< 10 % <input type="checkbox"/>	51	0
	10 % to <50 % <input type="checkbox"/>	52	20
	> 50 % <input type="checkbox"/>	53	30

Code Checked from Section A or B: 22

Total Points Factor 2: 20

FACTOR 3: Conventional Pollutants *(only when limited by the permit)*

A. Oxygen Demanding Pollutant: (check one) BOD COD Other: _____

Permit Limits: (check one)		Code	Points
<input type="checkbox"/>	< 100 lbs/day	1	0
<input type="checkbox"/>	100 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Checked: N/A

Points Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)		Code	Points
<input type="checkbox"/>	< 100 lbs/day	1	0
<input type="checkbox"/>	100 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 5000 lbs/day	3	15
<input type="checkbox"/>	> 5000 lbs/day	4	20

Code Checked: N/A

Points Scored: 0

C. Nitrogen Pollutant: (check one) Ammonia Other: _____

Permit Limits: (check one)	Nitrogen Equivalent	Code	Points
<input type="checkbox"/>	< 300 lbs/day	1	0
<input type="checkbox"/>	300 to 1000 lbs/day	2	5
<input type="checkbox"/>	> 1000 to 3000 lbs/day	3	15
<input type="checkbox"/>	> 3000 lbs/day	4	20

Code Checked: N/A

Points Scored: 0

Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

YES (If yes, check toxicity potential number below)

NO (If no, go to Factor 5)

Determine the *human health* toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column ? check one below)

Toxicity Group Points	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7 15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8 20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9 25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10 30

Code Number Checked: N/A

Total Points Factor 4: 0

FACTOR 5: Water Quality Factors

A. *Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:*

<input type="checkbox"/>	Yes	Code 1	Points 10
<input checked="" type="checkbox"/>	No	2	0

B. *Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?*

<input checked="" type="checkbox"/>	Yes	Code 1	Points 0
<input type="checkbox"/>	No	2	5

C. *Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?*

<input type="checkbox"/>	Yes	Code 1	Points 10
<input checked="" type="checkbox"/>	No	2	0

Code Number Checked: A: 2 B: 1 C: 2

Points Factor 5: A: 0 + B: 0 + C: 0 = 0 **Total**

FACTOR 6: Proximity to Near Coastal Waters

A. *Base Score: Enter flow code here (from Factor 2):* 22

Enter the multiplication factor that corresponds to the flow code: 0.30

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score	Flow Code	Multiplication Factor
<input type="checkbox"/>	1	1	20	11, 31, or 41	0.00
<input type="checkbox"/>	2	2	0	12, 32, or 42	0.05
<input checked="" type="checkbox"/>	3	3	30	13, 33, or 43	0.10
<input type="checkbox"/>	4	4	0	14 or 34	0.15
<input type="checkbox"/>	5	5	20	21 or 51	0.10
				22 or 52	0.30
				23 or 53	0.60
				24	1.00

HPRI code checked: 3

Base Score: (HPRI Score) 30 X (Multiplication Factor) 0.30 = 9 (TOTAL POINTS A)

B. *Additional Points* *NEP Program*
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
<input checked="" type="checkbox"/> Yes	1	10
<input type="checkbox"/> No	2	0

C. *Additional Points* *Great Lakes Area of Concern*
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)

	Code	Points
<input type="checkbox"/> Yes	1	10
<input checked="" type="checkbox"/> No	2	0

Code Number Checked: A: 3 B: 1 C: 2

Points Factor 6: A: 9 + B: 10 + C: 0 = 19 **Total**

SCORE SUMMARY

Factor	Description	Total Points
1	Toxic Pollutant Potential	<u>35</u>
2	Flows/Streamflow Volume	<u>20</u>
3	Conventional Pollutants	<u>0</u>
4	Public Health Impacts	<u>0</u>
5	Water Quality Factors	<u>0</u>
6	Proximity to Near Coastal Waters	<u>19</u>
TOTAL (Factors 1 through 6)		<u>74</u>

S1. Is the total score equal to or greater than 80? Yes (Facility is a major) No

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

No

Yes (Add 500 points to the above score and provide reason below):

Reason:

NEW SCORE: 74

OLD SCORE: 64

Permit Reviewer's Name: Andrew Hammond

Permit Reviewer's Number: (804) 527-5048

Date: 8/5/2011